At the completion of the rotation, the resident will have acquired the following competencies and will function effectively as:

1. **Medical Expert/Clinical Decision-Maker**

**General Requirement for R2-R5s:**

- a. Demonstrate diagnostic and therapeutic skills for ethical and effective patient care.
- b. Access and apply relevant information and therapeutic options to clinical practice.
- c. Demonstrate effective consultation services with respect to patient care, education and legal opinions.
- d. Recognise personal limits of expertise.

**Specific Requirements:**

**PGY-3 Level**

Appreciate the normal anatomy and physiology of diarthrodial joints. Understand the pathophysiology of inflammatory, degenerative and infectious joint processes. Understand treatment modalities and investigative techniques as they relate to joint reconstruction. Recognize the importance of postoperative complications. Understand the role of physiotherapy and occupational therapy. Understand the indications, contraindications and complications associated with non-steroidal and anti-inflammatories. Understand the principles of surgery as they relate to intra-articular and extra-articular reconstructive procedures of the lower extremity.

**PGY-4 Level**

Acquire as detailed knowledge of joint biomechanics reconstructive procedures for the lower extremity. Develop detailed knowledge of osteotomy, athrodesis and joint arthroplasty: indications, contraindications, complications as well as prosthetic options. Recognize and manage postoperative complications. Recognize and evaluate septic arthroplasties.

- **Hip Surgery:**
  - Hemiarthroplasty (unipolar, bipolar).
  - Core decompression.
  - Arthrotomy.

- **Knee Surgery:**
  - Patellar alignment procedures.
  - Arthrotomy.
  - Arthroscopy (sepsis).
  - Synovectomy.
  - High tibial osteotomy.

- **Ankle/Foot Surgery:**
  - Arthrotomy.
  - Synovectomy.
  - Osteotomy/implant arthroplasty.
  - Arthrodesis: (Simple, triple, subtalar, ankle).
PGY-5

Display a detailed knowledge of complex hip and knee arthroplasty and understand prosthetic options as well as technical considerations required to achieve the desired surgical goal.

Display a detailed knowledge of the principles of revision surgery with bone loss, and the principles of autograft/allograft reconstruction.

Display the ability to manage complex postoperative complications. Understand the principles of management of septic arthroplasties.

Hip Surgery:
- Arthrodesis.
- Osteotomies: femoral and pelvic.
- Arthroplasty: primary and simple revision
- Arthroscopy

Knee Surgery:
- Arthrodesis.
- Osteotomy: femoral and tibial
- Arthroplasty: primary

Ankle/Foot Surgery:
- Arthrodesis: Complex (subtalar, triple, ankle).
- Arthroscopy.

2. Communicator

General Requirement for R2-R5s:
- a. Establish therapeutic relationships with patients/families.
- b. Obtain and synthesise relevant history from patients/families/communities.
- c. Listen effectively.
- d. Discuss appropriate information with patients/families and the health care team.

Specific Requirements:
- a. Understand that effective patient-physician communication can foster patient satisfaction and compliance as well as influence the manifestations and outcome of a patient's illness and surgical intervention.
- b. Establish relationships with the patient that are characterized by understanding, trust, respect, empathy and confidentiality.
- c. Recognize the emotional stress for patients and families faced with orthopedic conditions and their associated surgical management, a stress especially accentuated in the treatment of children.
- d. Gather information not only about the disease but also about the patient's beliefs, concerns and expectations about the illness, while considering the influence of factors such as the patient's age, gender, ethnic, cultural and socioeconomic background, and spiritual values on that illness and on any proposed surgical intervention. (R4-5)
- e. Deliver information to the patient and family in a humane manner and in such a way that it is understandable; encourage discussion and promote patient's participation in decision-making to the degree that they wish.
- f. Obtain informed consent; appreciate alternative means of achieving consent if the patient is incompetent to provide consent, be it on the grounds of age or mental status, or other disqualifier.
- g. Understand and demonstrate the importance of cooperation and communication among health professionals involved in the care of individual patients such that the roles of these professionals are delineated and consistent messages are delivered to patients and their
families.
h. Maintain clear, accurate and appropriate written records.
i. Write well-organized and legible orders and progress notes.
j. Complete concise hospital discharge summaries promptly.
k. Write well-organized letters, providing clear direction to the referring physician and other physician and allied personnel, where indicated.

3. Collaborator

**General Requirement for R2-R5s:**
- a. Consult effectively with other physicians and health care professionals.
- b. Contribute effectively to other interdisciplinary team activities.

**Specific Requirements:**
- a. Identify and describe the role, expertise and limitations of all members of an interdisciplinary team required to optimally achieve a goal related to patient care, a research problem, an educational task, or an administrative responsibility. (R4-5)
- b. Develop a care plan for a mutual-interest patient, that includes investigation, treatment and continuing care, whether preoperatively or postoperatively, as well as in both hospital and community settings. (R3-R5)
- c. Participate in an interdisciplinary team, demonstrating the ability to accept, consider and respect the opinions of other team members, while contributing specialty-specific expertise.

4. Manager

**General Requirement for R2-R5s:**
- a. Utilize resources effectively to balance patient care, learning needs, and outside activities.
- b. Allocate finite health care resources wisely.
- c. Work effectively and efficiently in a health care organization.
- d. Utilize information technology to optimise patient care, life-long learning and other activities.

**Specific Requirements:**
- a. Have basic knowledge of how to function effectively in health care organizations, ranging from an individual clinical practice to organizations at the local, regional and national level. (R4-5)
- b. Have basic knowledge of the structure, financing, and operation of the Canadian health system and its facilities; and function effectively within it. (R4-5)
- c. Have ability to access and apply a broad base of information to the care of patients in ambulatory care, hospitals and other health care settings.
- d. Make clinical decisions and judgments based on sound evidence for the benefit of individual patients and the population served. This allows for an advocacy role primarily for the individual but in the context of societal needs when monitoring and allocating needed resources. (R3-5)
- e. Be open to working effectively as a member of a team or a partnership and to accomplish tasks whether one is a team leader or a team member.
- f. Have basic knowledge of population-based approaches to health care services and their implication for medical practice.
5. **Health Advocate**

**General Requirement for R2-R5s:**
- a. Identify the important determinants of health affecting patients.
- b. Contribute effectively to improved health of patients and communities.
- c. Recognise and respond to those issues where advocacy is appropriate.

**Specific Requirements:**
- a. Demonstrate knowledge of determinants of health by identifying the most important determinants of health (i.e., poverty, unemployment, early childhood education, social support systems), being familiar with the underlying research evidence, and applying this understanding to common problems and conditions in orthopedics. (R4-5)
- b. Demonstrate knowledge of public policy for health by describing how public policy is developed; identifying current policies that affect health, either positively or negatively (i.e., communicable diseases, tobacco, substance abuse); and citing examples of how policy was changed as a result of actions by physicians. (R3-5)
- c. Demonstrate knowledge of the management of individual patients, by identifying the patient's status with respect to one or more of the determinants of health (e.g., unemployment); adapting the assessment and management accordingly (e.g. the medical history to the patient's social circumstances); and assessing the patient's ability to access various services in the health and social system. (R4-5)
- d. Demonstrate knowledge of the key issues currently under debate regarding changes in the Canadian health care system, indicating how these changes might affect societal health outcomes and advocating to decrease the burden of illness (at a community or societal level) of a condition or problem relevant to orthopedics through a relevant orthopedic society, community-based advocacy group, other public education bodies, or private organizations. (R4-5)

6. **Scholar**

**General Requirement for R2-R5s:**
- a. Develop, implement and monitor a personal continuing education strategy.
- b. Critically appraise sources of medical information.
- c. Facilitate learning of patients, house staff/students and other health professionals.
- d. Contribute to development of new knowledge.

**Specific Requirements:**
1. Demonstrate the following clinical skills:
   - a. Pose a clinical question.
   - b. Recognize and identify gaps in knowledge and expertise around the clinical question.
   - c. Formulate a plan to fill the gap including to:
     - i. conduct an appropriate literature search based on the clinical question;
     - ii. assimilate and appraise the literature;
     - iii. develop a system to store and retrieve relevant literature;
     - iv. consult others (physicians and other health professionals) in a collegial manner.
   - d. Propose a solution to the clinical question.
   - e. Implement the solution in practice. Evaluate the outcome and reassess the solution (re-enter the loop at a) or b).
   - f. Identify practice areas for research.
2. Demonstrate the following research skills:
   a. Pose a research question (clinical, basic or population health).
   b. Develop a proposal to solve the research question including to:
      i. conduct an appropriate literature search based on the research question;
      ii. identify, consult and collaborate with appropriate content experts to conduct
         the research; and to
      iii. propose a methodological approach to solve the question.
   c. Carry out the research outlined in the proposal.
   d. Defend and disseminate the results of the research.
   e. Identify areas for further research that flow from the results.

3. Acquire the following educational experience:
   a. Demonstrate knowledge of, and the ability to apply, the principles of adult
      learning, with respect to oneself and others.
   b. Demonstrate knowledge of preferred learning methods in dealing with students,
      residents, and colleagues.

7. Professional

   **General Requirement for R2-R5s:**
   a. Deliver highest quality care with integrity, honesty and compassion.
   b. Exhibit appropriate personal and interpersonal professional behaviours.
   c. Practise medicine ethically consistent with obligations of a physician.

   **Specific Requirements:**
   1. Achieve the following discipline-based objectives:
      a. Display attitudes commonly accepted as essential to professionalism.
      b. Use appropriate strategies to maintain and advance professional competence.
      c. Continually evaluate his/her abilities, knowledge and skills and know his/her
         limitations of professional competence.
   2. Achieve the following personal/professional boundary objectives:
      a. Adopt specific strategies to heighten personal and professional awareness and
         explore and resolve interpersonal difficulties in professional relationships.
      b. Consciously strive to balance personal and professional roles and responsibilities
         and to demonstrate ways of attempting to resolve conflicts and role strain.
   3. Achieve the following objectives related to ethics and professional bodies:
      a. Know and understand the professional, legal and ethical codes to which
         physicians are bound.
      b. Recognize, analyze and attempt to resolve in clinical practice ethical issues such
         as truth-telling, consent, advanced directives, confidentiality, end-of-life care,
         conflict of interest, resource allocation, research ethics, etc.
      c. Have basic knowledge of and be able to apply relevant legislation that relates to
         the health care system in order to guide one's clinical practice. (R4-R5)
      d. Recognize, analyze and know how to deal with unprofessional behaviors in
         clinical practice, taking into account local and provincial regulations.

Revised into CanMEDS format
The following list of objectives is intended to provide a basis for your learning opportunity on foot and ankle. This document is intended to augment but not replace the “Objectives of Training and Specialty Training Requirements in Orthopaedic Surgery” and the “Specific Standards of Accreditation for Residency Program in Orthopaedic Surgery”. A copy of this document is supplied in your residency handbook and is also available on the Royal College website.

1. Medical Expert

Cognitive and Diagnostic

**Junior Resident**

- Understand normal musculoskeletal anatomy of the foot and ankle.
- Understand gait assessment.
- Understand common pathologic conditions of the foot and ankle.
- Recognize and manage common fractures of the foot and ankle.
- Recognize and manage common sports injuries of the foot and ankle.
- Demonstrate knowledge of the common surgical approaches in foot and ankle.

**Senior Resident**

- Understand and manage complex disorders of the foot and ankle including congenital and acquired.
- Recognize and manage complex diabetic foot pathology including ulcerations and Charcot fracture-dislocations.
- Understand complex fractures of the foot and ankle including Pilon fractures, Lisfranc fracture-dislocations, and calcaneal fractures.
- Understand and manage foot compartment syndrome.

Technical

**Junior Resident**

- Assess and manage simple fractures/dislocations of the ankle in the Emergency room including sedation techniques and casting.
- Demonstrate an ability to perform open reduction and internal fixation on simple ankle fractures and metatarsal fractures.
- Perform a detailed vascular and neurological examination of the foot.

**Senior Resident**

- Assess and manage complex foot and ankle fractures including application of a bridging external fixator for Pilon fractures, closed reductions of Lisfranc fractures and later open reduction and internal fixation of Lisfranc fracture dislocations.
- Assess and manage open fractures of the foot and ankle.
- Assess and manage plantar foot abscess.
- Assess and manage complex foot conditions including rheumatoid forefoot, acquired pes planus, and pes cavus deformities.
- Orders appropriate investigations for foot pathologies.

2. Communicator

- Understands the importance of communication in the cooperation and compliance of the patients and their families.
- Is able to obtain an informed consent for patients undergoing surgery. Demonstrates the ability to explain procedures to patients in a clear and concise manner.
- Is able to illicit information regarding patients’ social supports and occupation to aid the patient after discharge.

3. Collaborator

- Develop patient care plans with other members of the health care team including nurses, physiotherapists, occupation therapists and social workers.
- Demonstrate the ability to work within and as seniors, lead, a team of orthopaedic residents and medical students.
- Develop discharge plans for each patient and involve appropriate team members to accomplish smooth discharge.

4. Manager

**Junior Resident**

- Assess and allocate medical care within the hospital setting.
- Understand the costs of health care on society and function effectively and efficiently to control costs.

**Senior Resident**

- Lead a health care team and allocate manpower resources for patient care
- Understand a physician role in hospital administration.
- Be able to manage time efficiently to balance duties and learning.

5. Health Care Advocate

- Recognize and understand the psychological, social and physical determinants of patient health.
- Demonstrate a knowledge of resources available to the patient in need of community based care.
- Demonstrate how to promote health and prevent injury in the community at large.
6. Scholar

**Junior Resident**

- Demonstrates ability for self directed learning and learns to appraise the foot and ankle literature.
- Demonstrates ability to teach the medical students on the rotation.
- Recognizes knowledge insufficiencies and technical weaknesses and works to improve them.

**Senior Resident**

- Demonstrates ability to teach the junior residents and medical students in a structured and supportive manner.
- Identifies areas for potential foot and ankle research.

7. Professional

**Junior Resident**

- Demonstrates an ability to work professionally in a team
  Completes consults in a timely fashion.
- Seeks advice when dealing with rare conditions or pathologies outside scope of Knowledge.

**Senior Resident**

- Provides efficient and definitive advice on the consult service.
- Recognizes when to seek advice when confronted with unfamiliar conditions.
- Demonstrates compassion and empathy when dealing with the patients and their families.
General Goals and Objectives for the JGH Orthopaedic Trauma Service

The JGH trauma resident will be expected to manage all aspects of the trauma service, with close guidance from the supervising staff, using knowledge, skills, and attitudes appropriate to the resident’s level of training. Learning objectives are specified in the detailed goals and objectives of this rotation, and will involve all aspects of patient management and trauma care. There will be a strong emphasis on geriatric trauma care and surgical preparation including pre-operative planning. Ultimately, the trainee should strive to inspire confidence in patients and staff.

**Sample weekly schedule:**

**Monday:** Trauma room at either Lasalle or JGH. The trauma resident will choose where he/she will attend according to the cases planned that week. It is the responsibility of the trauma resident to inform the chief resident at the JGH, with sufficient notice, where he/she will attend to ensure adequate coverage at the other site.

**Tuesday:** Trauma clinic. Trauma rounds at 4pm.

**Wednesday:** JGH trauma room. (Optional MGH trauma rounds at 4pm if time permits)

**Thursday:** Academic teaching in the morning. Should the academic teaching take place in the afternoon, the trainee is expected to attend trauma clinic in the morning. In the afternoon, the resident is expected to take part in self-directed learning (ie. reading) or resident research projects. Arthroplasty rounds at 4pm.

**Friday:** JGH trauma room.
JGH Orthopaedic Trauma Rotation Goals and Objectives

This document is intended to augment but not replace the “Objectives of Training and Specialty Training Requirements in Orthopaedic Surgery” and the “Specific Standards of Accreditation for Residency Program in Orthopaedic Surgery”. A copy of these documents is supplied in your residency handbook and is also available on the Royal College website.

The resident is expected to be able to describe the rotation specific objectives prior to or at the commencement of the rotation.

**Medical Expert:**

The trainee is expected to demonstrate diagnostic and therapeutic skills for ethical and effective patient care. Provide patient access and apply relevant information and therapeutic options to clinical practice. The trainee will demonstrate effective consultation services with respect to patient care. Most importantly, the trainee is expected to recognize personal limits of expertise.

**Clinical Knowledge:**

a) **Medical Imaging Tests:** Requests appropriate imaging investigations. Will demonstrate accurate interpretation of basic x-rays, CT and MRI.

b) **Clinical Diagnosis and Decision Making:** Able to accurately diagnose bony and soft tissue injuries and propose a rational treatment plan.

c) **Pre-operative Planning:** Expected to have a detailed pre-operative plan for every surgery in which the trainee participates.

d) **Intra-operative Decision Making:** Arrive at correct and timely operative decisions for routine and complex procedures.

e) **Postoperative Care:** Able to plan appropriate pain management, mobilization, prevention of infection and DVT prophylaxis. The trainee is expected to discuss the postoperative plan with the supervising surgeon prior to leaving the operating room for each surgery.

f) **Emergency Management and Recognition:** Able to identify and respond appropriately to urgent medical and surgical problems. Efficiently provide appropriate therapy.

g) **Management of Complications:** Able to manage intra and postoperative complications to achieve the best patient outcome.
Surgical Knowledge

a) Surgical Approaches: Appropriate knowledge of surgical approaches and can perform these safely.

b) Use of Implants: able to use surgical implants appropriately and plan implant requirements pre-operatively effectively.

Communicator:

a) Able to establish and maintain therapeutic relationship, trust and confidentiality. Demonstrates empathy and sensitivity. Listens effectively and responds appropriately to concerns.

Verbal Communication

b) Communicates effectively with patients, their families, primary care physicians and other health care professionals

c) Obtains and synthesizes relevant history from patients and families.

d) Considers influence of patient's ethnic, cultural, and spiritual values, and age, gender, and socioeconomic background on illness and proposed intervention.

Written Communication

a) Able to maintain clear, accurate and appropriate written records. Written orders and progress notes are well organized and legible.

b) Discharge summaries are concise and completed promptly.

c) Clinic notes are well organized and provide clear direction to the referring physician.

Collaborator:

a) Consults and collaborates effectively with other physicians.

b) Functions effectively within a multidisciplinary team and ward staff to provide optimal patient.

c) Collaboration with orthopaedic hospitalists (GP Ortho) including daily sign-in and sign-out.

d) Collaborates with operating room staff, surgical head nurse and the anaesthesiology team to effectively plan and coordinate trauma operating rooms.

e) Collaborates with other orthopaedic residents on the arthroplasty and foot & ankle services regarding consults and medical issues of admitted trauma patients to ensure safe and effective transition of patient care.
**Manager:**

a) Manages his/her time effectively to balance patient care, learning needs, and outside activities.

b) Utilizes operating room resources appropriately.

c) Allocates finite health care resources wisely.

d) Able to triage cases to maximize patient care.

**Health Advocate:**

a) Advocates for the patient.

b) Able to identify the psychosocial, economic, environmental and biological factors that influence the health of patients and society.

c) Able to identify and promote available resources: social services, addictions services, intimate partner abuse and osteoporosis follow-up.

**Scholar:**

a) Critically appraise sources of medical information and undertake steps towards life-long learning (Reading JBJS and JAAOS).

b) Participate in teaching of other residents, medical students and other health care professionals. This involves appropriate sharing of surgical cases according to level of proficiency and personal limits of expertise.

c) Undertake self-directed learning: reads around cases and attends all teaching rounds at the JGH (including foot & ankle and arthroplasty).

**Health Professional:**

a) Discipline-based: Delivers the highest quality care with integrity, honesty and compassion. Sensitive to gender, cultural, racial and societal issues.

b) Personal and Professional Boundary: Exhibits appropriate personal and interpersonal professional behaviors. Recognizes conflicts and seeks help to resolve them when required.

c) Ethics and Professional Bodies: Understands and adheres to legal and ethical codes of practice, including confidentiality and informed consent.

d) Ethical Conduct: Reflects the highest standards of excellence in clinical care and ethical conduct. Practices medicine ethically consistent with the obligations of a
physician.

e) Insight and Self-assessment: Demonstrates insight into his/her limitations. Responsive to constructive feedback.
After completion of their rotation in orthopaedic oncology medical students and junior residents will:

1. Be informed on the basic features of bone and soft tissue tumors
2. Be initiated to the conduction of a musculoskeletal oncology patient questionnaire and physical examination
3. Recognize some of the most common symptoms and physical anomalies related to this patient population
4. Recognize some of the radiographic features of benign and malignant bone and soft tissue tumors
5. Outline a simple differential diagnosis relating to bone and soft tissue tumors
6. Be knowledgeable about the use and utility of blood and imaging studies
7. Be initiated to the principles of tumor biopsy
8. Gained some basic knowledge of the most common tumors histology
9. Understand the treatment possibilities for common tumors including the surgery, chemotherapy and radiotherapy
10. Understand prognostic factors and figures
11. Know some of the principles of treatment in metastatic bone disease including palliative care and pain control
12. Have some notions about quality of life, function and health status for the oncology population
13. Be initiated to specific needs of cancer patients including those at palliative stage
14. Be introduced to how to show empathy, availability, support and compassion to patients and family
15. Improve their verbal communication ability to patient and family

During their rotations resident would be expected to:

1. Perform oncology questionnaire and physical examination of new and follow up patents
2. Elaborate on the differential diagnosis, an investigation plan and treatment of patients
3. Attend to surgical management Performed needle and open biopsies

Knowledge is acquired through:

1. Rotation through the MSK oncology unit
2. Attendance to multidisciplinary musculoskeletal oncology clinics
3. Attendance to the weekly Sarcoma tumor board
4. Attendance to the monthly MSK tumor multidisciplinary teaching round
5. Orthopaedic seminars
1. **Medical Expert/Clinical Decision Maker**

   Describe the curriculum (i.e., organized teaching in basic and clinical sciences) that assures residents cover all relevant areas. The residents receive organized teaching in basic and clinical orthopaedic oncology through a two months rotation as either R4 or R5 level through the musculoskeletal oncology subdivision. Resident are either alone during this rotation or under the supervision of a fellow. Exposure is also gained by attendance to multidisciplinary musculoskeletal oncology clinics twice a week, attending operating room for tumor cases once a week, and mandatory participation through the many sarcoma rounds and conferences: Weekly sarcoma tumor board Friday morning, monthly MSK tumor multidisciplinary teaching round (starting September 2004) and through orthopaedic seminars once or twice yearly. In addition tumor cases are presented at hospital rounds held every other Thursday morning where residents demonstrate their ability to perform tumor patient questionnaire, physical exam and outline a plan of investigation and treatment.

2. **Communicator**

   Through their MSK oncology rotation residents become more familiar with cancer as a disease and how it impacts on the patients and its family. Residents are encouraged to address patients concerns about their condition and prognosis at the level of their knowledge and expertise either at the clinic, operating room or on the ward. They are present when diagnosis is announced and discussed and when difficult treatment issues are addressed.

   Through the tumors rounds the residents to acquire teaching and communication skills. Residents are expected to communicate with other residents and attending staff with regard to patient management, diagnostic and surgical techniques. During these rounds, presentations are frequently given by the residents to the attending staff, residents, medical students, and nurses.

   Tumor rotation residents see all patients preoperatively in the pre-admission clinic. This clinic runs in the same location and at the same time as one of our MSK oncology clinic. At this time, they are available to answer questions concerning the patients’ medical condition and upcoming surgery. In many cases, they provide the patients with sufficient information regarding the risks and benefits of treatment so that they can make an informed choice of management options. In the case of pediatric orthopaedics, this involves communicating this information to the patient’s parents. They may be involved in obtaining an informed consent for an operative procedure. This interaction of the residents with the patients is continuously supervised by the attending staff.

   Residents must obtain the ability to communicate effectively with other members of the health care team. Continuous feedback from allied health staff regarding resident’s interaction with them is common. This is especially important for the cancer patients where psychological, social and financial issues frequently needs to be addressed. Appropriate feedback is given to the residents.
3. **Collaborator**

The residents are given the opportunity to learn collaborative skills by working in a team. Residents are expected to delegate activities effectively to their junior residents but most often the MSK oncology rotation has only one senior resident rotation and as such work even more closely with the attending staff and oversees all the tumor service activities. Residents also learn how to appropriately consult other physicians in the treatment of orthopaedic patients. Residents are given the responsibility to actively manage the patients on the ward and to consult other physicians, as deemed necessary, to assist in treating the patient. All activities are overseen by the attending staff. As well, residents collaborate with the multidisciplinary team during the Tumor Clinic. They learn how they must collaborate as part of a multidisciplinary team in order to treat musculoskeletal tumors. They learn how transfer patient information to the rest of the multidisciplinary team. They also coordinate the patient’s treatment in lieu of the requirements by the radiotherapists and chemotherapists. This activity is overseen by the attending staff.

4. **Manager**

Residents are required to effectively carry out their work and prioritize their activities. This includes the management of patients in the clinic and operating room. Residents are required to use the current information technology in the hospitals to obtain blood and x-rays results. Their ability to obtain and utilize this information is continuously being evaluated.

The residents play a role in the planning, booking and execution elective surgery. The residents are expected to prioritize surgical needs, find appropriate time in the operating room and make certain the appropriate tumor implants are selected and available. These management and administrative skills are crucial to the residents’ performance.

Sarcoma tumor board provide an objective review of tumor cases presented. Peer review of the assessment and treatment is provided. A final consensus result in appropriate management.

Morbidity and Mortality Rounds are held at regular intervals every three months. Tumor case are part of these rounds. Residents are responsible for all aspects of this evaluation, which consists of chart review, evaluating the technical aspects of the surgical procedure and postoperative care. The residents present the complications, either medical, surgical or oncological, as well as discuss the possible changes to avoid these complications in the future.

5. **Health Advocate**

The resident’s integral role in planning investigation and treatment for tumor patients prepares the residents for their role as a health care advocate. Residents can thereby appreciate the difficulties with limited resources under the Canadian Health Care system and become able to effectively prioritize what needs to be done and how to use the resource efficiently. They also get familiar to the provision of timely management and care to be given to the cancer patient and knowledgeable about how this can affect patient outcome..

Risk factor associated with primary or secondary tumors are sought after by residents so patients can be instructed about how this has or could affect their well being (e.g. smoking)
Oncology is an area where ethics play a significant role. Trainees have to address and resolve ethics issues. We maintain closed contact with ethicians and other resources such as CNS in Oncology, palliative care specialists to insure proper teaching and decision making.

6. **Scholar**

Direct observation at hospital and inter-hospital rounds with regards to the ability of the resident to present cases in a manner which is clear, concise and imparts reference material to staff, peers, paramedical personnel and medical students is an important mechanism in evaluating communication skills.

As well, when residents see patients in the out patient clinics they are required to review the case with the attending staff. This gives the staff the opportunity to evaluate the residents’ communication skills. In the outpatient clinic, the residents are constantly communicating with nurses, cast technicians, etc… This behaviour is closely monitored by the attending staff.

Local hospital and inter-hospital rounds, tumor seminars, meeting where resident present tumor related papers are ways for the residents to acquire teaching and communication skills during their MSK oncology rotation.

Occasional journal clubs about MSK oncology provide the residents with the means to critically appraise the literature and evaluated statistical analysis. Online computers are available on wards and clinics and allow immediate access to web site on tumor and to medical literature for quick appraisal.

All orthopaedic residents are expected to carry out a research project each year. This includes MSK oncology. These usually consist of clinical projects. As such, the residents must carry out a literature review and appraisal of it. This is done in conjunction with an attending staff. This research is then presented to the Division of Orthopaedic Surgery and the Visiting Professor for scientific appraisal.

Additionally, the residents are continuously exposed to ongoing clinical research through their oncology rotation. Local or national projects are an important part of our activities.

Residents are ask to provide some clinical information or fill forms on patient status and familiarize themselves with the common tools used in the functional assessment and quality of life of cancer patient.

Finally OSCE exams are done twice a year and include topics on tumor. These address the knowledge of trainees and insure proper communication skills.
The following document is intended to guide you in some of the specific knowledge and skills you should develop on this rotation. This document is intended to augment but not replace the “Objectives of Training and Specialty Training Requirements in Orthopedic Surgery” and the “Specific Standards of Accreditation for Residency Programs in Orthopedic Surgery”. A copy of these documents is supplied in your residency handbook and is also available on the Royal College website.

The resident is expected to be able to describe the rotation specific objectives prior to or at the commencement of the rotation.

1. MEDICAL EXPERT
   1.1. Cognitive and Diagnostic
      1.1.1. Obtain appropriate history and perform physical examination relating to a tumour and be competent in assessing the following:
         1.1.1.1. Size of the tumour and its relationship to fascia
         1.1.1.2. Neurovascular and articular involvement
         1.1.1.3. Lymphatic involvement
         1.1.1.4. Sites of metastatic potential for primary MSK tumours
         1.1.1.5. Organs systems likely to metastasize to the MSK system
         1.1.1.6. Tumour characteristics including issues specific to age and gender
      1.1.1.2. Describe the different bone and soft tissue tumour classes and their behaviour:
         1.1.1.2.1. Primary lesions
         1.1.1.2.2. Benign
         1.1.1.2.3. Benign Aggressive
         1.1.1.2.4. Malignant
         1.1.1.2.5. Metastatic lesions
      1.1.1.3. Describe the presentation, radiologic characteristics and natural history of the most common primary bone tumour types:
         1.1.1.3.1. Chondroid lesions
         1.1.1.3.2. Osteoid lesions
         1.1.1.3.3. Fibrous lesions
         1.1.1.3.4. Others- unicameral bone cyst, hemangioma, histiocytosis, lipoma, eosinophilic granuloma, giant cell tumour, aneurysmal bone cyst, ewings sarcoma, adamantinoma, chordoma, hemangioepicytoma
      1.1.1.4. Describe the presentation, radiologic characteristics and natural history of different primary soft tissue tumour types:
         1.1.1.4.1. Fibrous lesions
         1.1.1.4.2. Lipoid lesions
         1.1.1.4.3. Muscle lesions
         1.1.1.4.4. Vascular lesions
         1.1.1.4.5. Nerve lesions
         1.1.1.4.6. Others - myxoma, fibrosarcoma, malignant fibrous histiocytoma, pigmented villonodular synovitis, giant cell tumour of tendon sheath, myositis ossificans, tumoral calcinosis
      1.1.1.5. For a given MSK tumour:
         1.1.1.5.1. Formulate a differential diagnosis and stage the tumour (according to the Enneking Musculoskeletal Tumour Society (MSTS) System)
         1.1.1.5.2. Describe the appropriate biopsy principles of MSK tumours.
         1.1.1.5.3. Formulate a treatment plan for the different tumour types
         1.1.1.5.4. Describe the multidisciplinary approach to
            1.1.1.5.4.1. curative treatment
1.1.1.5.4.2. palliative care
1.1.1.6. Formulate treatment plans for complications in MSK oncology surgery.

1.2. Technical
1.2.1.1. To be able to perform with proficiency:
1.2.1.1.1. Open biopsy of bone and/or soft-tissue lesion
1.2.1.1.2. Stabilization of metastatic disease
1.2.1.1.3. Treatment of common benign tumours

2. COMMUNICATOR
2.1. Deliver information to patients and family in a humane manner so that the patient and family understand the options of care and are able to participate in the decision-making process
2.2. Demonstrate an ability to listen effectively and address patients concerns
2.3. Develop strategies for delivering bad news and discussing end of life decisions
2.4. Effectively communicate with others involved in the multidisciplinary care of the oncology patient
2.5. Provide timely and appropriate consultation as requested

3. COLLABORATOR
3.1. Describe the roles and responsibilities of the members of a multidisciplinary oncology team
3.2. Develop a working relationship with the appropriate pathologist and radiologist
3.3. Participate in Sarcoma tumor boards and Morbidity and Mortality rounds
3.4. Describe support groups in the community who can assist the oncology patient and their families

4. MANAGER
4.1. Prioritize the investigation and management of the oncology patients
4.2. Understand the balance of allocation of healthcare resources, balancing effectiveness, efficiency and access with optimal patient care
4.3. Describe appropriate waiting times for the oncology patient

5. HEALTH ADVOCATE
5.1. Understand the risk factors associated with the development of a malignancy
5.2. Describe strategies to decrease the societal risk of malignancy
5.3. Communicate to patients their individual risk factors

6. SCHOLAR
6.1. Pose a research question and describe how they would go about answering the question
6.2. Prepare and present an appropriate lecture/presentation including critical appraisal of the literature; describe how this information could be integrated into practice

7. PROFESSIONAL
7.1. Demonstrate ethical practice in the management of the oncology patient including respect for issues regarding gender, ethnicity, religion, age and cultural.
7.2. Demonstrate honesty, integrity, commitment, compassion, respect and altruism
I. **Preamble**

- One teaching unit, 2 hospitals: the Montreal Children’s Hospital (MCH) and the Shriners Hospital
- Trauma calls are taken at MCH
- Most Trauma and any elective cases needing ICU’s postoperatively are done at the MCH.
- Most elective pediatric orthopedic surgery is done at the Shriners (congenital, metabolic, developmental, neuro-orthopedics...)
- Rounds: Trauma rounds once a week at MCH
- Indication rounds once a week at the Shriners
- Bedside rounds once a week in each hospital
- Shriners Grand Rounds are held once every two months on Thursday mornings not coinciding with McGill Grand Rounds.
- Teaching session (case presentation, text-book discussion, formal presentation or Journal Club) twice a week (Wednesday & Friday morning)
- Mortality-Morbidity rounds according to hospital specific requirements

II. **Specific Pediatric Objectives**

2.1 **Medical Expert**

2.1.1 Basic Scientific Knowledge:

- Be able to understand anatomical, physiological and biochemical differences with the adult
- Be able to understand the physiology of the growth plate and growth in general
- Be able to understand the phosphocalcic metabolism and its pathologies

2.1.2 Basic Clinical Knowledge

- Physiological variants (axis of lower limbs)
- Stages of neurological development
- Principles of children’s fractures (mechanism, epidemiology, classification of growth plate injuries)
- Principles of bone and joint infections

2.1.3 History and Physical Examination (See 2.1.5)

2.1.4 Interpretation and utilization of information (See 2.1.5)

2.1.5 Clinical judgment and decision making
R2-3 must be able to do a comprehensive physical examination of a pediatric patient with the following diagnoses:

- DDH, Legg-Calvé-Perthes, tibia vara, simple foot deformities, SCFE
- As well must be able to diagnose, treat, and make clinical decisions concerning most pediatric traumas.

R4 are expected to be able to do the same for more difficult pathologies such as clubfoot, cavus foot and other more complex foot deformities (CVT), neuro-orthopedics, benign tumors as well as spine deformities (scoliosis, spondylolisthesis). Should be able to completely diagnosis and manage pediatric trauma and its complications.

R5 same as above and must know how to deal with complex pediatric problems such as skeletal dysplasias, congenital limb deficiencies (upper and lower limb) as well as complex spine problems (congenital scoliosis and kyphosis).

2.1.6 Technical skills required in the specialty

R-2-3 must be able to perform all closed reductions of fractures and dislocations as well as all tractions and cast techniques. In addition, they must understand the principles of external fixation and know the simple anatomical approaches to common fractures (forearm, elbow, ankle).

R4 must know all the surgical approaches of pediatric fractures requiring open reduction. The most common surgical approaches to the hip, the femur, as well as the foot (posteromedial release) and the spine (posterior) must be understood. In addition, R4’s are expected to be able to recognize and manage postoperative complications.

R5 are expected to approach a clubfoot as well as know the indications of pelvic osteotomies and their techniques. R5 are also expected to be able to apply the principles of Ilizarov and the selection of the levels for spine fusion. The anterior approach to the spine must be known.

2.2 Communicator

While interprofessional relationships with physicians and other allied health professionals are not specific to pediatrics, it is very different for the communication with patients and families. The resident doing a pediatric rotation must understand that a child is not a small adult. Bedside manners must be adapted to the age of the patient; compassion and patience are
expected. Communications with parents and families are crucial as a source of information. Time-consuming activity, it must not be overlooked.

2.3 **Collaborator**

R 2-3 are expected to collaborate very closely with nursing, resulting in a team approach. At this level, lots of learning can be done on the ward with experienced people.

R4 and R5 though more independent (are expected to seek advice for medication dosages specific to pediatrics).

2.4 **Manager**

The pediatric rotation is an opportunity to differentiate the cost/effectiveness of several common treatments (traction versus surgery for femur fractures for example) Organization of work and time management: not specific to pediatrics

2.5 **Health Advocate**

Must understand important determinants of pediatric health such as poverty, education and the family background. Must know the public policy related to pediatric health. (child abuse for example)

2.6 **Scholar**: No specific pediatric objectives

2.7 **Professional**: No specific pediatric objectives
The following document is intended to guide you in some of the specific knowledge and skills you should develop on this rotation. This document is intended to augment but not replace the “Objectives of Training and Specialty Training Requirements in Orthopaedic Surgery” and the “Specific Standards of Accreditation for Residency Program in Orthopaedic Surgery”. A copy of these documents is supplied in your residency handbook and is also available on the Royal College website.

The resident is expected to be able to describe the rotation specific objectives prior to or at the commencement of the rotation.

It is understood that a residency in Orthopaedics is a continuum. Senior residents will be able to meet the same objectives as junior residents as well as the senior objectives.

1. **MEDICAL EXPERT**

   - **Cognitive & Diagnostic**

     **Junior Resident (R2-R3)**

     - Understand normal musculoskeletal anatomy, growth, and development in the child including common angular and torsional variants.
     - Understand the anatomy and pathologic basis of the disorders leading to a limp in a child.
     - Understands the mechanisms, patterns, assessment, management, and potential complications related to common pediatric fractures and dislocations.
     - Recognition and management of common overuse syndromes.
     - Recognition of non-accidental trauma and pathologic fractures.
     - Demonstrate knowledge of specific surgical approaches as relates to the pediatric population.
     - Understands the mechanisms, patterns, assessment, management, and potential complications related to osteomyelitis and septic arthritis.
     - Understands the principles of management of children with:
       - Common hip disorders
       - Angular and torsional deformities
       - Limb length discrepancy
     - Understands the principles of diagnosis and assessment of pediatric benign neoplasia interpretation of imaging and other diagnostic tools specific to the pediatric population.

   **Senior Resident (R4-R5)**

     - Understand the principles of management of children with:
       - Complex Neuromuscular Disease
       - Congenital musculoskeletal deformities
       - Spinal deformities
       - Metabolic bone disease/skeletal dysplasia
       - Pediatric benign neoplasia

     - Understand mechanisms, patterns, assessment, management, and potential complications related to pediatric fractures and dislocations.
     - Understand the anatomy, pathology, assessment, and management complex hip disorders.
• Understand the principles of management of pediatric polytrauma
• Understand the principles of operative/non-operative management of:
  o hip dysplasia in normal and neuromuscular patients
  o clubfeet & other foot deformities (Cavus, planovalgus foot)
  o spinal deformity

Technical

Junior Resident (R2-R3)
• Assessment and management of simple fractures including appropriate analgesia/anesthesia techniques & cast applications and principles.
• Demonstrate proficiency in clinical examination in the following areas:
  o Assess the limping child
  o The hips of infants and children including Barlow and Ortolani maneuvers
  o General limb length
  o Scoliosis examination
• Demonstrate the ability to:
  o perform percutaneous pinning of fractures
  o apply skin and skeletal traction
  o apply a Pavlik harness

Senior Resident (R4-R5)
• Assessment and management of complex pediatric fractures including:
  o physeal injuries
  o compound fractures
  o multiple trauma
  o compartment syndrome, and neurovascular compromise
• carry out non operative treatment of children’s clubfoot
• Operative management of:
  o Septic arthritis including arthrogram and arthrotomy
  o Osteomyelitis
  o Slipped capital femoral epiphysis
• Management of benign bone conditions
• Perform appropriate investigation including biopsy for suspected pediatric neoplasia
• Demonstrate the ability to apply a hip spica cast

2. COMMUNICATOR
• Understands the role of communication in fostering patient satisfaction and compliance as it relates to pediatrics, parents and caregivers.
• Elicits psychosocial information pertinent to the health of the patient including: socioeconomic background, ethnic, cultural, and spiritual values.
• Demonstrates the ability to deliver information to the pediatric patient and their support group in a way which is understandable.
• Understands and obtains informed consent using medical knowledge and awareness of current consent legislation and the Canada Health Act.
• Demonstrate the ability to describe procedures to the pediatric patient and patient support group.
• The ability to obtain an appropriate informed consent for patients undergoing interventions.

3. COLLABORATOR
• **Junior Resident (R2-R3)**
  o Demonstrate an understanding of the unique collaborative nature of pediatric care.
  o Understand and develop patient care plan with other members of the interprofessional health care team.
  o Demonstrate the ability to work within an interprofessional team in regards to research and administrative duties.

• **Senior Resident (R4-R5)**
  o Demonstrate the ability to lead an interprofessional team.
  o Develop a care plan, integrate all members of the team needed and follow the plan to completion in regards to medical or nonmedical issues around the care of the pediatric orthopaedic patient.

4. MANAGER
• **Junior Resident (R2-R3)**
  o Access and allocate infinite health care efficiently within a health care organization.
  o Understand the structure, financing, and operation of the health care system and function effectively within it.

• **Senior Resident (R4-R5)**
  o Lead the physician team and allocate manpower resources in regards to patient care.
  o Understand the role of the physician in regards to administrative duties in health care.
  o Demonstrate the ability to manage time allocation to inter and intra personal learning and duties.

5. HEALTH ADVOCATE
• **Junior Resident (R2-R3)**
  o Recognize and understands the psychological, social, and physical determinants of patient health.
  o Understand patient advocacy issues in regards to family, care giver and social care network.
  o Understands the medico legal obligations associated with non accidental trauma.
  o Recognize the emotional stress for patients and families faced with orthopaedic conditions and optimize psychosocial support network for the pediatric patient.

• **Senior Resident (R4-R5)**
  o Promotion of the determinants of health in the community at large as it relates to the pediatric population.
  o Demonstrate the knowledge of resources available to those patients in need of community based care.
  o Understand the role of community based advocacy in regards to patients with special needs.
  o Demonstrate the need to service as a patient advocate for scarce resources for the patient with special needs.
6. SCHOLAR
   • Junior Resident (R2-R3)
     o Demonstrates ability for self directed learning and critical appraisal of the literature.
     o Demonstrate stratified level of knowledge of pediatric orthopaedics with teaching of the junior members of the pediatric health care team.
     o Recognize gaps in knowledge and implement a plan to improve their knowledge base.
   • Senior Resident (R4-R5)
     o Demonstrates the ability to resolve previously identified deficits in knowledge and technical skills.
     o Identify possible areas of research in pediatrics orthopaedics.
     o Continue to develop teaching models for patient and colleague education.

7. PROFESSIONAL
   • Junior Resident (R2-R3)
     o Demonstrates the ability to work within the scope of clinical and technical acumen and obtains responsible and timely patient referrals.
     o Practice ethically consistent with the obligations of a physician and expectations of the community in regards to gender, culture, ethnicity, race, spiritual values and socioeconomic standard.
     o Demonstrates the ability to put patient and parents at ease and inspire confidence in the treatment plan.
   • Senior Resident (R4-R5)
     o Provides efficient, authoritative consultation to the referring source.
     o Serve as a role model to the junior members of the health care team in regards to a balance between professional and personal roles.
     o Understand the legislation in regards to treatment of the pediatric patient or patients otherwise unable to understand the scope of treatment needed for care.
     o Demonstrates ability to identify and remediate weakness in their managerial, administrative or education skills in regards to care of the pediatric patient.
Competency

The following competencies are required to be completed by each candidate during each rotation. At the beginning of each rotation the CTU director or his representative will provide the candidates the following document. It is the candidate’s responsibility to complete these in a timely fashion. At mid rotation, the CTU director will provide feedback as well as remind the candidate’s obligation as to the objectives of the rotation. At the end of the rotation, a formal evaluation will be completed by the CTU director and will be based on the completion of the following goals and objective.

1. History & physical examination:
   **Candidate (R1,R2)**

   Candidate will need to present the CTU director or one of the staff’s on the spine service a detailed work up investigations and management plan for two patients with one of the follow diagnosis:
   - Cervical spine fracture
   - Thoraco-lumbar fracture
   - Lumbar Discectomy
   - Spinal stenosis
   - Discitis

   If candidate does not encounter any patient during the rotation with the preceeding diagnosis, then the candidate will need to write up the classic signs and symptoms expected with two of these diagnoses

   **Candidate (R3,R4,R5)**

   Candidate will need to present the CTU director or one of the staff’s on the spine service a detailed history and physical for two patients with one of the follow diagnosis:
   - Occipital Cervical fracture dislocation fracture
   - Degenerative scoliosis
   - Cervical Myelopathy
   - Spinal Tumor
   - Thoracic Disc
   - Epidural abscess

   These H&E will be used to judges whether or not a trainee has acquired the skills needed to complete a medical history and performs an adequate physical examination to permit a valid formulation of the patient’s problem. The factor should also judge whether or not the information elicited and observed is recorded in an organized and sequential manner, which permits a clear definition of the problem and a rational approach to differential diagnosis and management.
2. Relevant Investigation & Management

Candidate (R1,R2)

Candidates will need to illustrate and document to the CTU director or one of the Staff’s on the spine service they have ordered the appropriate investigation and they have instigated the appropriate treatment of two patients with one of the follow diagnosis:

- Cervical spine fracture
- Thoraco-lumbar fracture
- Lumbar Disectomy
- Spinal stenosis
- Discitis

In addition, the candidate will need to document which factors (clinical signs, classifications) have dictated their clinical management. As previously stated if the candidates have not encountered any patient with the preceding diagnosis, then the candidate will need to write up treatment algorithms for two of these diagnoses.

Candidate (R3,R4,R5)

Candidates will need to illustrate and document to the CTU director or one of the staff’s on the spine service they have ordered the appropriate investigation and they have instigated the appropriate treatment of two patients with one of the follow diagnosis:

- Occipital Cervical fracture dislocation fracture
- Degenerative scoliosis
- Cervical Myelopathy
- Spinal Tumor
- Thoracic Disc
- Epidural Abscess

These objectives will judge whether or not the candidates are able to interpret correctly the information gathered and shows discrimination in identifying the important and less important information that will allow the identification of the problems affecting the health of the patient. The trainee’s concern for the cost of unnecessary investigation and sensitivity to patient inconvenience and discomfort will also be assessed. In addition, these objectives will judge whether or not the candidates have initiated appropriate treatment for each diagnosis.

3. Technical Surgical skills

Candidate (R1,R2)

Candidates will need to perform for the CTU director or one of the staff’s on the spine service the following surgical procedures:

- Posterior Exposure of the Cervical, thoracic, lumbar spine
- Identification of the entry points for:
  - Thoracic, Lumbar pedicle screws
  - Cervical lateral mass screws
- Orientation of pedicle screws and lateral mass screws

Candidate (R3,R4,R5)

Candidates will need to perform for the CTU director or one of the staff’s on the spine service the following surgical procedures:

- Posterior Exposure of the Cervical, thoracic, lumbar spine
- Insertion of Thoracic, Lumbar pedicle screws, Cervical lateral mass screws in patients with normal anatomy, and Laminectomy of the lumbar spine
4. Communication skills

_**Stating the Obvious**_

1. Residents, fellows and staff are expected to round daily on all admitted patients. If the staff did not manage to round on a patient then the residents and or fellows are expected to contact the staff on that day to inform them of the progress of their patients. 2- All consults must be reviewed in an expedient fashion with a spine staff’s. N.B. Fellows on the spine service are considered like R6 hence the consults still need to be reviewed by a staff. The timing of the review is dictated by the urgency and clinical management of the specific consults. Any consults from the ICU must be completed within one hour, and a clear treatment must be writing in the chart and transmitted to the attending in the ICU. “Will review with staff is not an acceptable management” 3- Weekly clinical spine activities (OR, Clinics) are reviewed on Wednesday during pre-op rounds. Residents and fellows will be assigned to specific activities. The distribution of the activities must be fair and equilibrated across the residents and fellows. The senior resident must present the weekly distribution to the CTU director for approval. 4- Monthly schedules of all spine staff’s will also be provided to residents on the service. Hence at any given time in the week, the resident on call will know was the spine staff on call can be reached. If the resident on call has paged the staff on call and the staff has not respond within 10 min, then the resident can check the master schedule or check with the staff secretary in order to know were the staff on call can be found to review the pending consult. If the staff is in the OR and then the resident on call can review the case with a spine staff not on call, to expedite the management of the urgent consult. . The resident, having the master schedule of all spine staff will be able to contact an attending in the clinic. Fellows are the contact information for each of the spine attending to facilitate communication with the spine staff. Dr Weber, who is based full time at the MGH, is the “second On call” during regular hours, and Dr Golan is the “second On call” at the JGH 5- Resident and fellows are expected to actively participate in teaching rounds (Wednesday pre-op spine rounds – prepare cases, Thursday Journal club - must read the papers, Ortho Peds fellow is to attend the pre-op peds rounds on Thursday and then go to the Journal club)

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<tr>
<td>Dr Jean A Ouellet</td>
<td>MCH Paula 24464</td>
<td>406 3488</td>
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<td>Dr Michael Weber</td>
<td>MGH Sonia 45476</td>
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<td>Dr Peter Jarzem</td>
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<td>Dr Rudy Reindl</td>
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<td>Dr Jeff Golan</td>
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The spine group has met and is putting forward the following changes to address the shortcoming of the spine service subsequent to the Royal college accreditation. The specific criticism from the royal college regarding the spine service was inadequate supervision of the trainees during the spine rotation.

Specifically, residents have expressed the following concerns: 1) they are unable to reach the attending on call leaving them unsupervised, 2) they still lack clear objectives regarding their tasks, 3) they feel that their intraoperative experience is less than ideal as the fellows are doing most of the cases.

In addition, we the spine group, feel that some global criticisms of the program need to be address in our measures to ensure, that the spine service remains a strong academic rotation.

We intend to address these criticisms via the implementation of the following measure:

1. **Start of rotation Orientation:**
   
   A Hand out will be given to each resident explaining the internal working of the rotation. It will spell out exactly what is expected from each resident based on year of training Junior R1&R2, Senior R3 & R4 & R5.
   
   What is expected of them in clinic, in OR, for Wednesday: pre-op rounds, Friday research rounds, Thursday bimonthly journal club. New Friday attending business rounds will be instigated to review resident’s evaluations, and any pending issues. Learning Objectives (See attached document)

2. **Weekly Global roster will be established identifying OR cases and clinics with specific resident and fellows assigned to each cases and each clinic.**

3. **All resident and fellows will receive the monthly agendas of all the spine surgeons.** This measure will ensure that at all time, residents will know where the spine surgeon on call can be found. Hence, if a surgeon is scrub in the OR and has not responded to a page, the resident will be able to call directly into the operating room informing the surgeon that a consultation is pending. In addition, this master agenda will provide the resident were the other spine surgeons can be reached and will ensure permanent attending coverage. We have assigned Dr Weber, as the backup consulting spine surgeon for urgent consult at the MGH during regular hours. Dr Golan has been assigned as the backup consulting spine surgeon for urgent consults at the JGH during regular hours. If the spine surgeon on call has not answered a call within 10 to 15 mins and the resident has not managed to track him down then Dr Weber or Dr Golan will be on site to review pending consults as a “second” on call spine surgeon.

4. **The number of spine fellow has been limited to TWO.** If after these new measures have been implemented and the surgical experience of the fellows or the resident remains poor, we will limit the spine fellowship position to ONE.

5. **Formal sit down mid rotation and end of rotation evaluation will be scheduled via CTU secretary Mary Pampena.** These will be done during or new Friday morning business spine rounds. Dr Weber and Dr Jarzem have been designated to do so.
My office remains open for at all time to discuss any matters related to the behaviors of staff, fellows and residents. Similar objectives will be elaborated about fellows.
Clinical Duties for the Spine Team at the MGH
McGill Orthopaedic Spine Surgery Rotation

(These guidelines apply to Neuro & Ortho residents)

General Objectives

Trainees will be able to master the fundamentals of Basic sciences, clinical and therapeutic knowledge to treat patients with simple and urgent spinal disorders.

Trainees will participate in the conservative and surgical management of patients on the Spine service. The specific duties will vary depending on the number of residents on the service. Seeing the rotations are specialty based, are hope is not to divide residents tasks solely on level of training. The resident team must equally distribute tasks and responsibility through out the team. juniors (R1-R2) and seniors (R3-R6) including fellows must work together and ensure that all are exposed to the many levels of patient care: post op patient issues on the floor (orders/writing detailed progress notes); out patient clinics; OR exposure, emergency consult. This document pertains specifically to the clinical duties of the residents, for the learning objectives of the rotation, please refer to “Goals and Objectives for the Residents, McGill Orthopaedic Spine Surgery”.

Specific responsibilities of spine fellows

1. The fellow is to be considered as a “hands on” junior staff. By this we expect the fellows to round in the morning with the spine residents, checking on post operative patients as well as all new admissions waiting for surgeries. If the spine service is short of residents then we expect them to write progress notes and dealing with clinical issue on the floor. They are to be on-call and responsible for all emergency cases presenting to the hospitals. We expect the fellows to elaborate and present to the treating team, the management and surgical plan for all elective and emergency patients. As the fellows skills progress, we expect them to be the primary surgeon on all emergency cases, and the majority of the elective cases, pending the complexity of cases. We expect that the residents will be the first assistants to the fellows with direct supervision of the attending spine surgeons. Fellows will be assigned to a specific hospital for a 4 months rotation resulting in 3 rotations. (Three rotations are: JGH/MGH /MCH/Shriners)

Specific responsibilities of spine residents

1. First call: Every day the team must designate a First call resident: This must be communicated to locating every morning to ensure that they have the correct resident for 1st call.

   a. As a guideline, if there are more than on junior residents (R1-R2) on the service for a bloc rotation, they will share the first call duties for the Spine service that block. If there is only one junior resident on the service for the month than it is expected that the senior resident will on occasion take the First call designation.

   b. If there are no junior residents on the service, then the senior residents (R3-R6) will equally share the first call duties for the block.

   i. Example: an R6 in Neurosurgery and an R3 in Orthopaedics are both considered senior residents and must share call duties equally if there is no junior resident on the service.
2. **Consults:**
   a. Any consult for the Spine service must be seen in a timely manner by the resident who is responsible for covering the first call.
   b. Conceptually, the chain of decision making would be the junior who would discuss the case with the senior and then the fellow, and then the staff. However this must almost happen simultaneously to ensure that the process is efficient and patients are treated in a timely fashion. If the junior feels that urgent management is required they can contact the staff directly at any point. If at any point any resident feels that management of patients are less than ideal, they are to contact the staff directly.
   c. All consults must be discussed with fellows and staff. It is important that all consults and cases are placed on the spine list and discussed with all residents and fellows on the service to ensure that no patient is “forgotten” or certain members of the team are not aware of a case.

3. **Operating Room: For elective cases.**
   a. The priority in the operating room to be first assistant during surgeries will be given to the senior residents.
   b. If there are more than one senior (R3-R6) on the service, then the cases must be divided equally amongst them.
   c. If there are no senior residents on the service, then the junior residents (R1-R2) will share the first assistant role amongst themselves.

4. **Operating Room: For emergency cases**
   a. The priority will be given to the resident that works up the patient in the emergency room irrespectively of the level of training.

5. **Morning rounds:**
   a. All residents and fellows on the Spine service must round as a group on patients admitted under the Spine service.

6. **Sign out rounds**
   a. At the end of the day, it is the responsibility of the senior resident to review any issues in the “Spine Book”. If points have been raised and he/she is unable to answers, then they are to contact the fellow or the staff to ensure that all issues are resolved before the end of the day.

7. **Morning teaching:**
   a. There are Spine sign-out rounds in the Orthopaedic residents room (MGH) every Monday morning at 7am. All residents on the Spine service are expected to be present at those rounds to ensure good patient care.
   b. Spine rounds take place every Friday from 6:30am – 7:30am. All residents on the Spine service must be present for the rounds. We understand that the Neurosurgery residents have grand rounds every Friday morning, however, they must still be present for the first half of the Spine rounds. Each resident is expected to give at least one presentation a month during the Spine rounds. Please discuss the topics with Dr. Ouellet or Dr. Jarzem.

8. **Clinics:**
   a. Spine clinic is usually every Wednesday starting at around 8am and all residents are expected to be present for the clinic. The actual timings for the clinic may vary from week to week. It is the responsibility of the residents to check the start time of the clinic every week. Residents are expected to cover the three Spine staff (Dr. Jarzem, Dr. Ouellet, Dr. Reindl).
Residents on the Complex Spine Rotation

**Goals and Objectives**

**Complex Spine Rotation**

**General Objectives**

Independent of trainee’s background (orthopedics or neurosurgery residency) we anticipate the trainees will be integrated fully into the orthopedic service to acquire the skill sets to manage all spinal pathologies as per the CanMeds objectives. Basic mechanical orthopedic principles are required to better understand the biomechanical constraints of spinal ailments.

Complex Spine rotations are to be undertaken with the concept that junior and senior residents as well as the spine fellows work in close collaboration. Objectives are divided per years of training not to dictate the task the trainees are limited to undertake but rather to delineation the expectation of the acquisition of knowledge.

**A. Medical Expert**

**Complex Spinal Rotation R1, R2**

Trainees should master in an incremental fashion the patho-physiology underlying congenital, acquired, degenerative spinal ailment. The trainees need to concentrate on the non-surgical management of spinal ailments. They need to familiarize themselves with the peri-operative complications of spinal disease. Focus on history and physical is expected in the R1 / R2 years

**History & physical examination:**

1. Display clinical competence in evaluating spinal disorders:
   - Relevant history taking to all spinal disorders
   - Relevant physical exam assessing for spinal deformity, spinal instability
   - Relevant neurological exam

**Basic scientific knowledge to be acquired:**

1. Detailed knowledge of anatomy, embryology and physiology of the spinal cord
2. Congenital, developmental and acquired non-traumatic conditions of the spinal column
3. Musculo-skeletal anatomy of cervical, thoracic, lumbar spine; osseous ligamentous and neural elements including Inter vertebral disc morphology
4. Biomechanical and functional anatomy of the spine

This factor judges whether or not a trainee takes a complete medical history and performs an adequate physical examination to permit a valid formulation of the patient’s problem. The factor should also judge whether or not the information elicited and observed is recorded in an organized and sequential manner which permits a clear definition of the problem and a rational approach to differential diagnosis and management.

**Complex Spinal Rotation R3, R4, R5**

Trainees should master in an incremental fashion from R3 through R5, the fundamental sciences, clinical and therapeutic knowledge to treat patients with simple and urgent spinal disorders. By spinal disorders we specifically expect the trainees to initiate (conservative) management of the following pathologies:
1. Cervical, thoracic, lumbar fracture and dislocation
2. Scoliosis, Kyphosis, spondylolysis-lessthesis
3. Degenerative disc disease: cervical, thoracic, lumbar disc herniations; cervical or lumbar spinal stenosis
4. Spinal infections
5. Spinal tumors

For the following pathologies we expect the trainees to acquire the surgical skills to safely manage these pathologies.
   1. Cervical and lumbar discectomies
   2. Stabilization of sub axial cervical fractures, thoracic and lumbar fractures.
   3. Cervical, thoracic, lumbar laminectomies.

**Basic scientific knowledge to be acquired:**
1. Natural degeneration of the spine
2. Systemic inflammatory illness affecting the spine

**Basic clinical knowledge:**
1. Appreciation of Classification (discal, degenerative disorders, mechanical instabilities, spinal deformities).
2. Display knowledge of appropriate investigative techniques
3. Interpretation of advanced investigative techniques:
   - Computerized axial tomography.
   - CT Myelography.
   - Magnetic resonance imaging.
4. Display a detailed knowledge of operative approaches to the spinal column.

These factors are judged using standardized rating system described below.

A low rating indicates the trainee shows serious gaps in his/her knowledge of clinical sciences or that he/she does not apply this knowledge correctly. A satisfactory rating indicates that the trainee has a good knowledge of clinical sciences that he/she applies well in problem-solving and other aspects of patient care. This factor should also consider the trainee’s knowledge of current scientific literature and his/her application of this knowledge to case presentation and daily patient management.

**Interpretation and utilization of information:**
1. Role of physiotherapy and occupational therapy in the management of spinal disorders - acute and chronic
2. Display competence in the non operative management of spinal disorders
3. Understand indications, contraindications and complications related to surgical intervention

This factor judges whether or not the trainee is able to interpret correctly the information gathered and shows discrimination in identifying the important and less important information that will allow the identification of the problems affecting the health of the patient. The trainee’s concern for the cost of unnecessary investigation and sensitivity to patient inconvenience and discomfort should also be considered.
Clinical judgment & decision making:

1. Display competence in the non-operative management of spinal disorders.
2. Display adequate knowledge in advanced non-operative management of spinal disorders - bracing techniques, physiotherapy
3. Appreciate indications for surgery for spinal disorders
4. Understand principle of fusion levels in spinal deformity with their implication regarding complications, and natural history
5. Recognize and manage postoperative complications.
6. Recognize and evaluate vertebral sepsis: Osteomyelitis, Discitis.

This factor judges the trainee’s ability to effectively and efficiently establish a program of investigation and management adapted to the patient’s condition, recognizing the limits of his/her ability, the hazards of drugs and other therapy and the need to modify therapy when indicated. The trainee should also demonstrate his/her appreciation for the total needs of the patient, recognizing factors that may limit compliance with prescribed therapy and the non-medical (socio-economic and other) factors that may affect the patient’s health.

Technical skills required in the specialty:

1. Display surgical competence in the following areas:
   - Lumbar decompression: i.e. Laminectomy, discectomy
   - Lumbar fusion with or without instrumentation
   - Cervical discectomy
2. Display surgical competence in spinal instrumentation:
   - Transpedicular vertebral fixation (pedicle screws – lumbar fusions)
   - Anterior cervical plating
   - Cervical Lateral mass screws
3. Display a detailed knowledge of the principles of internal fixation with regards to: Fracture management cervical thoracic lumbar. Specific are Gardners-Well Tongs application, Halo & Vest application, usage of pedicle fixation and rod constructs to stabilize

This factor judges if the trainee can carry out professional techniques correctly and efficiently.

B. Communicator

Inter-professional relationships with physicians:
This factor judges if the trainee can work effectively with other physicians in the healthcare team, shows consideration and tact for junior members of the team and is respectful of team members. Ability to communicate the urgency of spinal cord compression or neurological deficits due to spinal pathology to other members of the medical profession.

Communications with other allied health professionals:
This factor judges the trainee’s ability to communicate and work effectively with the other members of the healthcare team.

Communications with patients:
This factor judges if the trainee is able to communicate easily with patients, showing respect for his/her patients and gaining their cooperation and confidence. Post spinal injury paralysis or motor deficit requires a certain skills which will be conveyed to the trainee.

Communications with families:
This factor judges if the trainee is able to communicate easily with patients’ families, showing respect for his/her patients and gaining their cooperation and confidence.
Written communication and documentation:
History, physical, diagnostic formulation, progress notes, plans; discharge summaries and consultation reports are complete and accurate with satisfactory organization and assessment. Clear, focus documentation is critical in the management of spinal patients as transfer of information is key in optimization of clinical outcome.

C. Collaborator
Interacts and consults effectively with all health professionals by recognizing and acknowledging their roles and expertise
Delegates effectively:
This factor judges that the trainee delegates effectively to other members of the healthcare team.

Manager
Understands & uses information technology:
This factor judges if the trainee is able to use current information technology in the course of their professional life. The ability to evaluate spinal condition heavily relies on ever growing multimodality imaging.

Uses health care resources cost-effectively:
This factor judges that the trainee has concern for the cost of unnecessary investigation and sensitivity to patient inconvenience and discomfort in the course of their professional duties. Make usage of MRI or other imaging will be assessed as a marker of cost effectiveness.

Organization of work & time management:
This factor judges whether or not the trainee effectively organizes his/her work in such a way that priorities are established and that coordination occurs with the other members of the team ensuring total, acute, and continuing care of his/her patients. Prioritization of consult is critical when managing patient with spinal ailments as delayed of diagnosis and treatment leads to poor outcomes.

D. Health advocate
Advocates for the patient:
This factor judges the trainee’s ability to advocate for the patient. Health habits, weight loss, smoking cessation, osteoporosis treatment, all have a direct impact on management of spinal pathology.

Advocates for the community:
This factor judges the trainee’s ability to advocate for society and the community.

Scholar
Motivation to read and learn:
This factor judges the trainee’s knowledge of current scientific literature and his/her application of this knowledge to case presentation and daily patient management. Weekly rounds with focus topics are reviewed as resident are expected to have read up on recurrent topics.

Critically appraises medical literature:
This factor judges the trainee’s ability to critically-appraise research methodology and medical literature. Spine Journal Club participation and preparation.

Teaching skills:
This factor judges whether the trainee takes the initiative and develops the ability to teach other health care professionals and/or patients about specific relevant health care issues. Per rotation trainees organize a Friday morning spine rounds.
Completion of research/project:
This factor judges that the trainee is able to organize and complete successfully research, or a project.

Professional Integrity & honesty:
This factor judges whether the trainee is dependable, reliable, honest and forthright in all information and facts.

Sensitivity & respect for diversity:
This factor judges that the trainee is able to understand and be sensitive to issues related to age, gender, culture and ethnicity.

Responsible and self-disciplined:
This factor judges whether the trainee adequately accepts professional responsibilities, placing the needs of the patients before the trainee’s own, ensuring that the trainee or his/her replacement are at all times available to the patients, recognizing the limits of competence, and seeking and giving assistance when necessary. The trainee is punctual, and respects local regulations relating to the performance of his/her duties.

Communicates with patients with compassion and empathy
Recognition of own limitations, seeking advice when needed:
This factor judges that the trainee is able to understand his/her limits of competence, and is able to seek and give assistance when necessary.

Understands principles of ethics; applies to clinical situations:
This factor judges the trainee’s ability to understand the principles and practice of biomedical ethics as it relates to the specific specialty or subspecialty, and to practice medicine in an ethically responsible manner.

Global evaluation of competence and progress
This factor judges the total professional competence and progress of the trainee in consideration of his/her stage of training in his/her specialty. This judgment synthesizes the assessments given in the above criteria, keeping in mind their relative importance and indicating the degree to which the trainee has shown progress and diligence during his/her rotation.

Explanation of Ratings:
Please assess the trainee’s overall clinical competence using the following ratings:

Superior: Far exceeds reasonable expectations.
Satisfactory: Meets reasonable expectations.
Borderline: Often falls short of reasonable expectations.
Unsatisfactory: Falls far short of reasonable expectations.

“Reasonable expectations” should be appropriate to the level of training of the candidate. “Could not judge” in the global evaluation of competence and progress: This means that the trainee did not complete the rotation.
The following document is intended to guide you in some of the specific knowledge and skills you should develop on this rotation. This document is intended to augment but not replace the “Objectives of Training and Specialty Training Requirements in Orthopaedic Surgery” and the “Specific Standards of Accreditation for Residency Program in Orthopaedic Surgery”. A copy of these documents is supplied in your residency handbook and is also available on the Royal College website.

The resident is expected to be able to describe the rotation specific objectives prior to or at the commencement of the rotation.

It is understood that a residency in Orthopaedics is a continuum. Senior residents will be able to meet the same objectives as junior residents as well as the senior objectives.

**JUNIOR RESIDENT**

**Medical Expert**

1. **Basic Science**
   a) General knowledge of functional anatomy and musculoskeletal physiology as it applies to athletic performance.
   b) Appreciation of biomechanics as it relates to specific functions: walking, running, jumping, throwing
   c) Basic understanding of pathophysiology of acute injuries in the athletic population.
   d) Basic knowledge of the pathophysiology of degenerative disorders of the upper & lower extremity as it pertains to physically active individuals.
   e) Knowledge of exercise physiology and its relevance to overall fitness & athletic performance.

2. **Basic Clinical Knowledge**
   a) Awareness of mechanisms of injury as it applies to acute and chronic injuries in the athlete.
   b) Awareness of clinical signs and symptoms and presentation of common acute athletic injuries, as well as degenerative conditions about the upper and lower extremities.

3. **History and Physical**
   a) Ability to elicit a complete history and to physically examine the knee to elicit ligamentous instability, meniscal pathology, tendonitis, and degenerative disease.
   b) Ability to elicit a complete history and to physically examine the shoulder to evaluate anterior instability, rotator cuff tears, impingement, tendonitis, acromio-clavicular joint pathology.
   c) Ability to elicit a complete history and to physically examine the ankle to evaluate sprains, instability, other acute traumatic injuries.
4. **Interpretation and Utilization of Information**

a) Ability to order the appropriate and necessary blood tests as it pertains to the above conditions.
b) Ability to interpret standard radiographs and blood work as it pertains to the above conditions.

5. **Clinical Judgment and Decision Making**

Ability to demonstrate a basic understanding of potential treatment options for the above-mentioned conditions.

6. **Technical Skills**

a) Demonstrate knowledge of surgical principles and a basic familiarity with common surgical procedures used to treat the above conditions.
b) Demonstrate familiarity with intra-articular injection and Arthrocentesis techniques for the knee, shoulder, ankle and elbow.
c) Diagnostic arthroscopy.

**Communicator**

a) Able to effectively demonstrate skills as a communicator and work and communicate effectively with other physicians, allied health professionals, patients and families.
b) Able to complete, and organize an accurate history as well as physicals, progress notes, consultations and discharge summaries.
c) Understands the role of communication in fostering patient satisfaction and compliance.
d) Elicits psychosocial information pertinent to the health of the patient including: socioeconomic background, ethnic, cultural, and spiritual values.
e) Demonstrates the ability to deliver information to the patient and their support group in a way which is understandable.
f) Understands and obtains informed consent using medical knowledge and awareness of current consent legislation and the Canada Health Act.
g) Demonstrate the ability to describe procedures to the patient and patient’s support group.
h) The ability to obtain an appropriate informed consent for patients undergoing interventions.

**Collaborator**

a) Awareness of a team approach to the management of athletic problems involving physician, surgeon, therapist, coach/trainer and nutritionist.
b) Interacts and consults effectively with all allied health professionals and acknowledges their roles and expertise.
c) Understand and develop patient care plan with other members of the inter-professional health care team.
d) Demonstrate the ability to work within an inter-professional team in regards to research and administrative duties.
e) Able to delegate appropriately and effectively to other members of the healthcare team.

**Manager**

a) Shows ability to incorporate the use of current information technology into the practice of medicine (e.g.: use of PACS, internet, digital imaging…)
b) Shows a basic understanding of the use of healthcare resources in a cost-effective and patient sensitive manner.
c) Exhibits an ability to effectively organize his/her work and work effectively as part of a team to ensure total and continuing care of his/her patients.

**Health Advocate**

a) Shows an ability to act as an effective healthcare advocate for the patient, society, and the community.
b) Recognize and understands the psychological, social, and physical determinants of patient health.
c) Understand patient advocacy issues in regards to family, care giver and social care network.
d) Recognize the emotional stress for patients and families faced with orthopaedic conditions and optimize psychosocial support network for the patient

**Scholar**

a) The trainee exhibits a familiarity with sources of current scientific literature as it pertains to sports medicine and arthroscopy.
b) Develops an ability to critically evaluate and appraise medical literature.
c) Shows an ability and interacts in teaching medical students and allied healthcare workers and patients.
d) Able to organize and successfully complete a research project.

**Professional**

a) Displays dependability, reliability, honesty and is forthright with patients and colleagues.
b) Displays an understanding and sensitivity to age, gender, culture and ethnicity issues.
c) Displays responsibility and self-discipline and punctuality.
d) Communicates with patients with compassion and empathy.
e) Recognizes his/her own limitations and is able to seek and give advice/assistance when necessary.
f) Understands the principles and practice of biomedical ethics as it relates to sports medicine and minimally invasive orthopedic surgery.
g) Demonstrates the ability to work within the scope of clinical and technical acumen and obtains responsible and timely patient referrals.
h) Practice ethically consistent with the obligations of a physician and expectations of the community in regards to gender, culture, ethnicity, race, spiritual values and socioeconomic standard.
i) Demonstrates the ability to put patient and parents at ease and inspire confidence in the treatment plan.
The following document is intended to guide you in some of the specific knowledge and skills you should develop on this rotation. This document is intended to augment but not replace the “Objectives of Training and Specialty Training Requirements in Orthopaedic Surgery” and the “Specific Standards of Accreditation for Residency Program in Orthopaedic Surgery”. A copy of these documents is supplied in your residency handbook and is also available on the Royal College website. The resident is expected to be able to describe the rotation specific objectives prior to or at the commencement of the rotation.

It is understood that a residency in Orthopaedics is a continuum. Senior residents will be able to meet the same objectives as junior residents as well as the senior objectives.

SENIOR RESIDENTS

Medical Expert

1. Basic Science
   a) Detailed knowledge of biomechanics as it relates to specific functions: walking, running, and throwing.
   b) Detailed knowledge of principles of knee and shoulder rehabilitation as it pertains to athletic injuries and degenerative problems and postoperative rehabilitation.

2. Basic Clinical Knowledge
   a) Detailed knowledge of mechanisms of injury as it applies to acute and chronic injuries in the athlete.
   b) Knowledge of the non-surgical and surgical management of common problems about the knee including: instability, meniscal pathology, degenerative arthritis.
   c) Thorough knowledge of the non-surgical and surgical management of complex knee disorders including:
      - Osteochondral lesions
      - Patellofemoral arthritis and instability
      - Chronic and complex knee instabilities
      - Malalignment disorders
      - Failed Arthoplasty/Ligament Reconstruction
   d) Knowledge of the non-surgical and surgical management of common problems about the shoulder including: impingement, rotator cuff tears instability adhesive capsulitis, AC joint pathology.
   e) Thorough knowledge of the non-surgical and surgical management of complex shoulder disorders including:
      - Multidirectional instability
      - Internal Impingement
      - Labral tears
3. History and Physical
   a) Ability to elicit a complete history and to physically examine the knee to elicit ligamentous and multiple ligament instability meniscal pathology tendonitis, degenerative disease and patello-femoral pathology.
   b) Ability to elicit a complete history and to physically examine the shoulder to evaluate anterior and multi-directional instability, rotator cuff pathology, labral pathology and AC joint arthritis and instability, internal impingement.
   c) Ability to elicit a complete history and physically examine the ankle to evaluate sprains, instability, other acute traumatic injuries.

4. Interpretation and Utilization of Information
   a) Ability to order and interpret the appropriate and necessary blood and fluid tests and imaging as it pertains to all the above conditions.
   b) Ability to interpret imaging tests ordered including x-ray, CT, MRI, MR-Arthrography, Arthrography and bone scan as it pertains to all the above conditions.

5. Clinical Judgement and Decision Making
   a) Able to demonstrate a knowledge of the appropriate work-up and non-surgical and surgical management for the above-mentioned conditions.
   b) Demonstrate a good understanding of the impact of the disease process and its necessary treatment in the patient’s life and sport.
   c) Demonstrate a knowledge of factors involved in return-to-play decisions for competitive and recreational athletes.

6. Technical Skills
   a) Demonstrate a knowledge & understanding of the various surgical techniques used to treat the above-mentioned conditions.
   b) Develop a proficiency in performing the following basic surgical procedures in the knee:
      1. Diagnostic Arthroscopy
      2. Arthroscopic Debridement
      3. Simple and arthroscopic partial menisectomy
      4. Arthroscopic removal of loose bodies
      5. Total knee Arthroplasty
      6. Repairs of Traumatic tendon tears about the knee (patellar tendon, Quads tendon)
   c) Develop a proficiency in performing the following advanced surgical procedures in the knee:
      1. Complex partial menisectomies (bucket-handle tears)
      2. Meniscal repair – all inside and inside-out
      3. ACL Reconstruction (arthroscopic)
      4. Mosaicplasty/cartilage grafting
      5. Tibial Tubercle Osteotomy
      6. Lateral retinacular release
      7. High tibial Osteotomy (opening & closing Wedge)
      8. Unicompartmental Knee Arthroplasty
9. Osteochondral fragment fixation

d) Develop a familiarity with complex reconstructive surgeries about the knee:
   1. Revision ACL Surgery
   2. Multiligamentous Knee Reconstruction

e) Develop a proficiency in performing the following surgical procedures in the shoulder:
   1. Open / Arthroscopic Anterior Instability Repairs
   2. Open / Arthroscopic Acromioplasty
   3. Open / Arthroscopic Distal Clavicle Excision
   4. Open / Mini-Open / Arthroscopic Rotator Cuff Repairs
   5. Introductions to principles of shoulder arthroscopy
   6. Manipulation under Anesthesia & capsular releases for adhesive capsulitis
   7. Arthroscopic Superior Labral Repairs
   8. Biceps Tenosesis & Tenotomy

e) Develop a familiarity with complex reconstructive surgical procedures in the shoulder / arm:
   1. Posterior Labral repairs
   2. AC joint stabilizations
   3. Subscapularis tendon repair & reconstruction
   4. Pec Major Repair
   5. Distal Biceps Repair
   6. Revision Instability Repairs
   7. Bony Instability Procedures

g) Develop an understanding of the principles of shoulder arthroscopic reconstructive techniques and basic ankle and elbow arthroscopy techniques.

**Communicator**

a) Able to effectively demonstrate skills as a communicator and work and communicate effectively with other physicians, residents, allied health professionals, patients and families.
b) Able to complete, and organize a concise and accurate history and physicals, progress notes, consultations, and discharge summaries.
c) Able to effectively demonstrate skills as a communicator and work and communicate effectively with other physicians, allied health professionals, patients and families.
d) Able to complete organized and accurate history and physicals, progress notes, consultations and discharge summaries.
e) Understands the role of communication in fostering patient satisfaction and compliance.
f) Elicits psychosocial information pertinent to the health of the patient including: socioeconomic background, ethnic, cultural, and spiritual values.
g) Demonstrates the ability to deliver information to the patient and their support group in a way which is understandable.
f) Understands and obtains informed consent using medical knowledge and awareness of current consent legislation and the Canada Health Act.
g) Demonstrate the ability to describe procedures to the patient and patient’s support group.

h) The ability to obtain an appropriate informed consent for patients undergoing interventions.

**Collaborator**

a) Awareness of a team approach to the management of athletic problems involving physician, surgeon, therapist, coach/trainer and nutritionist.

b) Interacts and consults effectively with all health and allied health professionals and acknowledges their roles and expertise.

c) Able to delegate appropriately and effectively to other members of the healthcare team.

d) Demonstrate the ability to lead an inter-professional team.

e) Develop a care plan, integrate all members of the team needed and follow the plan to completion in regards to medical or nonmedical issues around the care of the orthopaedic patient.

**Manager**

a) Shows the ability to effectively incorporate the use of current information technology into the practice of medicine (eg.: use of PACS, internet, digital imaging, telemedicine…)

b) Shows an ability to use healthcare resources in a cost-effective and patient sensitive manner.

c) Exhibits an ability to effectively organize his/her work effectively as part of a team to ensure total and continuing care of his/her patients.

d) Lead the physician team and allocate manpower resources in regards to patient care.

e) Understand the role of the physician in regards to administrative duties in health care.

f) Demonstrate the ability to manage time allocation to inter and intra personal learning and duties.

**Health Advocate**

a) Shows an ability to act as an effective healthcare advocate for the patient, society and the community.

b) Promotion of the determinants of health in the community at large as it relates to this specific patient population.

c) Demonstrate the knowledge of resources available to those patients in need of community based care.

d) Understand the role of community based advocacy in regards to patients with particular & special needs.

e) Demonstrate the need to service as a patient advocate for scarce resources for the patient with particular & special needs.

**Scholar**

a) Exhibits a knowledge & understanding of current scientific literature as it pertains to sports medicine and arthroscopic surgery.

b) Exhibits an ability to critically evaluate and appraise medical literature and journal articles.
c) Shows and ability and interest in teaching and instructing students, junior residents and allied health-care workers as well as families and patients.
d) Exhibit an ability to instruct and teach procedural techniques to junior members of the team.
e) Able to organize and successfully complete a research project.
f) Demonstrate the ability to resolve previously identified deficits in knowledge and technical skill.

Professional

a) Displays dependability, reliability, honesty and is forthright with patients and colleagues.
b) Displays an understanding and sensitivity to age, gender, culture and ethnicity issues.
c) Displays responsibility, self-discipline and punctuality.
d) Communicates with patients with compassion and empathy.
e) Recognizes his/her own limitations and is able to give advise/assistance when necessary.
f) Understands the principles and practice of biomedical ethics as it relates to sports medicine and arthroscopic surgery.
g) Provides efficient, authoritative consultation to the referring source.
h) Serve as a role model to the junior members of the health care team in regards to a balance between professional and personal roles.
i) Demonstrates ability to identify and remediate weakness in their managerial, administrative or education skills in regards to care of the patient.
The resident must show appropriate-for-level mastering of the CanMed qualifications of medical expert, communicator, collaborator, manager and scholar. The resident must show appropriate-for-level professional conduct. The resident must assume a graduated level of responsibility throughout the duration of the training program. Completion or recertification of A.T.L.S. course is strongly recommended prior to entering the PGY-2 training year.

**PGY-1**

This level of formal training, in concert with appropriate clinical exposure should result in demonstrable competence in the following areas: Triage and establishment of treatment priorities in the multiply injured patient, technical competence in the following: upper airway obstruction/cricothyroidectomy, endotracheal intubation, needle and chest tube insertion, peripheral venous cut down, subclavian and internal jugular puncture, central venous monitoring and chest wall, pleural space and lung injuries. Competence in non-operative management of major intra-abdominal injuries, assessment of major blood loss, renal failure, metabolic and electrolyte imbalance should be attained. Non-surgical management of ileus, bowel obstruction, diaphragmatic hernia and haemoperitoneum are also important skills.

**PGY-2**

*Expected to learn the following concepts:*

Initial assessment and management of trauma.

**PGY-3**

*Expected to learn and be able to teach the following concepts:*

PGY-4

*Expected to learn and be able to teach the following concepts:*


PGY-5

*Expected to learn and be able to teach the following concepts:*

Orthopaedic Trauma Rotation Objectives

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The resident is expected to be able to describe the rotation specific objectives prior to or at the commencement of the rotation.

PGY1

Medical Expert:

Basic scientific knowledge:

a) Understanding of pathophysiology of trauma.
b) Anatomical landmarks for ATLS and ACLS
c) Cursory knowledge of life threatening traumatic injuries in keeping with ATLS requirements

Basic clinical knowledge:

a) Trainee correctly applies the facts, theories and present-day concepts of trauma care.
b) Trainee must possess knowledge of trauma situations and apply this knowledge to case presentation and daily patient management.

History & physical examination:

a) Proficiency in ATLS protocol
b) Proficiency in cursory MSK exam.

Interpretation and utilization of information:

a) Ability to order the appropriate and necessary blood tests as it pertains to the above conditions.
b) Ability to interpret standard radiographs and blood work as it pertains to the above conditions.

Clinical judgment & decision-making:

Ability to demonstrate knowledge of potential treatment options for the above mentioned conditions. Competence in non-operative management of major intra-abdominal injuries, assessment of major blood loss, renal failure, metabolic and electrolyte imbalance should be attained. Non-surgical management of ileus, bowel obstruction, diaphragmatic hernia and haemoperitoneum are also important skills.

Technical skills required in the specialty:

a) Demonstrate knowledge of and familiarity with common surgical procedures used to treat the above conditions.
b) Demonstrate proficiency:
a. upper airway obstruction/ cricothyroidectomy  
b. endotracheal intubation  
c. needle and chest tube insertion  
d. peripheral venous cut down  
e. subclavian and internal jugular puncture  
f. central venous monitoring  

Communicator:  

a) Able to effectively demonstrate skills as a communicator and work and communicate effectively with other physicians, allied health professionals, patients and families.  
b) History, physical, diagnostic formulation, progress notes, plans, discharge summaries and consultation reports are complete and accurate with satisfactory organization and assessment.  

Collaborator:  

a) Awareness of a team approach to the management of traumatic problems involving physician, surgeon, therapist and other allied health professionals.  
b) Interacts and consults effectively with all allied health professionals and acknowledges their roles and expertise.  
c) Able to delegate appropriately and effectively to other members of the healthcare team.  

Manager:  

a) Shows ability to incorporate the use of current information technology into the practice of medicine (eg.: use of PACS, internet, digital imaging)  
b) Shows an ability to use healthcare resources in a cost-effective and patient sensitive manner.  
c) Exhibits an ability to effectively organize his/her work and work effectively as part of a team to ensure total and continuing care of his/her patients.  

Health Advocate:  

Shows an ability to act as an effective healthcare advocate for the patient, society, and the community.  

Scholar:  

a) The trainee exhibits a familiarity with textbook knowledge as it pertains to traumatology.  
b) Exhibits an ability to critically evaluate and appraise treatment options.  
c) Shows ability and interacts in teaching medical students and allied healthcare workers and patients.  
d) Able to organize and successfully complete a research project.
**Professional:**

a) Displays dependability, reliability, honesty and is forthright with patients and colleagues.
b) Displays an understanding and sensitivity to age, gender, culture and ethnicity issues.
c) Displays responsibility and self-discipline and punctuality.
d) Communicates with patients with compassion and empathy.
e) Recognizes his/her own limitations and is able to seek and give advice/assistance when necessary.
f) Understands the principles and practice of biomedical ethics as it relates to traumatology.

**PGY2**

**Medical Expert:**

**Basic scientific knowledge:**

a) Understanding of pathophysiology of acute and chronic injuries in the soft and hard tissues for acute and trauma.
b) Anatomical planes and relation to surgical exposures.
c) In depth knowledge of simple fractures, hip fractures, long bone fractures, MSK soft tissue injuries.

**Basic clinical knowledge:**

a) Trainee correctly applies the facts, theories and present-day concepts of trauma care.
b) Trainee must possess a knowledge of current scientific literature and apply this knowledge to case presentation and daily patient management.

**History & physical examination:**

a) Proficiency in ATLS protocol
b) Proficiency in MSK exam.

**Interpretation and utilization of information:**

a) Ability to order the appropriate and necessary blood tests as it pertains to the above conditions.
b) Ability to interpret standard radiographs and blood work as it pertains to the above conditions.
c) Definition and classification of fractures, joint injuries, muscle/tendon injuries, vascular and neurological injuries.
d) Understand:
   a. Biomechanics and mechanisms of injuries.
   b. Appendicular and axial musculoskeletal anatomy.
   c. Fracture healing (basic knowledge clinical and radiological assessment.)
   d. Complications of fractures/dislocations.
Clinical judgment & decision-making:

Ability to demonstrate knowledge of potential treatment options for the above mentioned conditions.
Able to understand:

1. Indications and principles of management of closed reduction of fractures and dislocations.
2. Indications for open reduction of fractures and dislocations.

Technical skills required in the specialty:

a) Demonstrate knowledge of and familiarity with common surgical procedures used to treat the above conditions.
b) Demonstrate proficiency with minor procedure setup and accomplishment.
c) Act as second assistant on open fracture reductions.
d) Show competence in closed reduction techniques of long bone and intra-articular fractures.

Communicator:

a) Able to effectively demonstrate skills as a communicator and work and communicate effectively with other physicians, allied health professionals, patients and families.
b) History, physical, diagnostic formulation, progress notes, plans, discharge summaries and consultation reports are complete and accurate with satisfactory organization and assessment.

Collaborator:

a) Awareness of a team approach to the management of traumatic problems involving physician, surgeon, therapist and other allied health professionals.
b) Interacts and consults effectively with all allied health professionals and acknowledges their roles and expertise.
c) Able to delegate appropriately and effectively to other members of the healthcare team.

Manager:

a) Shows ability to incorporate the use of current information technology into the practice of medicine (e.g.: use of PACS, internet, digital imaging...).
b) Shows an ability to use healthcare resources in a cost-effective and patient sensitive manner.
c) Exhibits an ability to effectively organize his/her work and work effectively as part of a team to ensure total and continuing care of his/her patients.

Health Advocate:

Shows an ability to act as an effective healthcare advocate for the patient, society, and the community.
Scholar:

a) The trainee exhibits a familiarity with sources of current scientific literature as it pertains to traumatology.
b) Exhibits an ability to critically evaluate and appraise medical literature.
c) Shows ability and interacts in teaching medical students and allied healthcare workers and patients.
d) Able to organize and successfully complete a research project.

Professional:

a) Displays dependability, reliability, honesty and is forthright with patients and colleagues.
b) Displays an understanding and sensitivity to age, gender, culture and ethnicity issues.
c) Displays responsibility and self-discipline and punctuality.
d) Communicates with patients with compassion and empathy.
e) Recognizes his/her own limitations and is able to seek and give advice/assistance when necessary.
f) Understands the principles and practice of biomedical ethics as it relates to traumatology.

PGY3

Medical Expert:

Basic scientific knowledge:

a) Understanding of pathophysiology of acute and chronic injuries in the soft and hard tissues for acute and trauma.
b) Anatomical planes and relation to surgical exposures.
c) In depth knowledge of simple fractures, hip fractures, long bone fractures, MSK soft tissue injuries.

Basic clinical knowledge:

a) Trainee correctly applies the facts, theories and present-day concepts of trauma care.
b) Trainee must possess knowledge of current scientific literature and apply this knowledge to case presentation and daily patient management.

History & physical examination:

a) Proficiency in ATLS protocol
b) Proficiency in MSK exam.

Interpretation and utilization of information:

a) Ability to order the appropriate and necessary blood tests as it pertains to the above conditions.
b) Ability to interpret standard radiographs and blood work as it pertains to the above conditions.
Clinical judgment & decision-making:

Ability to demonstrate knowledge of potential treatment options for the above mentioned conditions.

Technical skills required in the specialty:

a) Demonstrate knowledge of and familiarity with common surgical procedures used to treat the above conditions.
b) Demonstrate proficiency with minor procedure setup and accomplishment.

Communicator:

a) Able to effectively demonstrate skills as a communicator and work and communicate effectively with other physicians, allied health professionals, patients and families.
b) History, physical, diagnostic formulation, progress notes, plans, discharge summaries and consultation reports are complete and accurate with satisfactory organization and assessment.

Collaborator:

a) Awareness of a team approach to the management of traumatic problems involving physician, surgeon, therapist and other allied health professionals.
b) Interacts and consults effectively with all allied health professionals and acknowledges their roles and expertise.
c) Able to delegate appropriately and effectively to other members of the healthcare team.

Manager:

a) Shows ability to incorporate the use of current information technology into the practice of medicine (eg.: use of PACS, internet, digital imaging...).
b) Shows an ability to use healthcare resources in a cost-effective and patient sensitive manner.
c) Exhibits an ability to effectively organize his/her work and work effectively as part of a team to ensure total and continuing care of his/her patients.

Health Advocate:

Shows an ability to act as an effective healthcare advocate for the patient, society, and the community.

Scholar:

a) The trainee exhibits a familiarity with sources of current scientific literature as it pertains to traumatology.
b) Exhibits an ability to critically evaluate and appraise medical literature.
c) Shows ability and interacts in teaching medical students and allied healthcare workers and patients.
d) Able to organize and successfully complete a research project.

**Professional:**

a) Displays dependability, reliability, honesty and is forthright with patients and colleagues.
b) Displays an understanding and sensitivity to age, gender, culture and ethnicity issues.
c) Displays responsibility and self-discipline and punctuality.
d) Communicates with patients with compassion and empathy.
e) Recognizes his/her own limitations and is able to seek and give advice/assistance when necessary.
f) Understands the principles and practice of biomedical ethics as it relates to traumatology.

**PGY4**

**Medical Expert:**

**Basic scientific knowledge:**

a) Knowledge of biomechanics, pharmaceutical therapy and basic metallurgy as it applies to fracture care and implant design.
b) Detailed understanding of pathophysiology of acute and chronic injuries in the soft and hard tissues for both acute and chronic traumatic diagnoses.
c) Detailed knowledge of anatomical planes and relation to surgical exposures.
d) In depth knowledge of simple intra-articular fractures, long bone fractures, poly-trauma, wrist and ankle fractures as well as simple spine fractures and dislocations.

**Basic clinical knowledge:**

a) Trainee correctly applies the facts, theories and present-day concepts of trauma care.
b) Trainee must possess knowledge of current scientific literature and apply this knowledge to case presentation and daily patient management.

**History & physical examination:**

a) Proficiency in ATLS protocol
b) Proficiency in MSK exam including nerve exam.

**Interpretation and utilization of information:**

a) Ability to order the appropriate and necessary blood tests as it pertains to the above conditions.
b) Ability to interpret all radiographs and blood work as it pertains to the above conditions.
Clinical judgment & decision-making:

Ability to demonstrate knowledge of potential treatment options for the above mentioned conditions.

Technical skills required in the specialty:

a) Demonstrate knowledge of and familiarity with common surgical procedures used to treat the above conditions.
b) Demonstrate proficiency with operative setup and accomplishment with minor staff supervision

Communicator:

a) Able to effectively demonstrate skills as a communicator and work and communicate effectively with other physicians, allied health professionals, patients and families.
b) History, physical, diagnostic formulation, progress notes, plans, discharge summaries and consultation reports are complete and accurate with satisfactory organization and assessment.

Collaborator:

a) Awareness of a team approach to the management of traumatic problems involving physician, surgeon, therapist and other allied health professionals.
b) Interacts and consults effectively with all allied health professionals and acknowledges their roles and expertise.
c) Able to delegate appropriately and effectively to other members of the healthcare team.

Manager:

a) Shows ability to incorporate the use of current information technology into the practice of medicine (e.g. use of PACS, internet, digital imaging).
b) Shows an ability to use healthcare resources in a cost-effective and patient sensitive manner.
c) Exhibits an ability to effectively organize his/her work and work effectively as part of a team to ensure total and continuing care of his/her patients.

Health Advocate:

Shows an ability to act as an effective healthcare advocate for the patient, society, and the community.

Scholar:

a) The trainee exhibits a familiarity with sources of current scientific literature as it pertains to traumatology.
b) Exhibits an ability to critically evaluate and appraise medical literature.
c) Shows ability and interacts in teaching medical students and allied healthcare workers and patients.
d) Able to organize and successfully complete a research project.
**Professional:**

a) Displays dependability, reliability, honesty and is forthright with patients and colleagues.
b) Displays an understanding and sensitivity to age, gender, culture and ethnicity issues.
c) Displays responsibility and self-discipline and punctuality.
d) Communicates with patients with compassion and empathy.
e) Recognizes his/her own limitations and is able to seek and give advice/assistance when necessary.
f) Understands the principles and practice of biomedical ethics as it relates to traumatology.

**PGY5**

**Medical Expert**

**Basic scientific knowledge:**

a) Knowledge of biomechanics, pharmaceutical therapy and basic metallurgy as it applies to fracture care and implant design.
b) Detailed understanding of pathophysiology of acute and chronic injuries in the soft and hard tissues for both acute and chronic traumatic diagnoses.
c) Detailed knowledge of anatomical planes and relation to surgical exposures.
d) In depth knowledge of complex intra-articular fractures, polytrauma, complex wrist and ankle fractures, associated soft tissue and skeletal trauma, flat bone fractures as well as non operative management of complex spine fractures and dislocations.

**Basic clinical knowledge:**

a) Trainee correctly applies the facts, theories and present-day concepts of trauma care.
b) Trainee must possess knowledge of current scientific literature and apply this knowledge to case presentation and daily patient management.

**History & physical examination:**

A Proficiency in MSK exam including all provocative and standard tests for all areas.

**Interpretation and utilization of information:**

a) Ability to order the appropriate and necessary tests as it pertains to the above conditions.
b) Ability to interpret all tests (MRI CT etc) as it pertains to the above conditions.

**Clinical judgment & decision-making:**

Ability to demonstrate knowledge of potential treatment options for the above mentioned conditions.
Technical skills required in the specialty:

a) Demonstrate knowledge of and familiarity with all surgical procedures used to treat the above conditions.
b) Demonstrate proficiency with operative setup and accomplishment without staff supervision.

Communicator:

a) Able to effectively demonstrate skills as a communicator and work and communicate effectively with other physicians, allied health professionals, patients and families.
b) History, physical, diagnostic formulation, progress notes, plans, discharge summaries and consultation reports are complete and accurate with satisfactory organization and assessment.

Collaborator:

a) Awareness of a team approach to the management of traumatic problems involving physician, surgeon, therapist and other allied health professionals.
b) Interacts and consults effectively with all allied health professionals and acknowledges their role and expertise.
c) Able to delegate appropriately and effectively to other members of the healthcare team.

Manager:

a) Shows ability to incorporate the use of current information technology into the practice of medicine (e.g. use of PACS, internet, digital imaging).
b) Shows an ability to use healthcare resources in a cost-effective and patients sensitive manner.
c) Exhibits an ability to effectively organize his/her work effectively as part of a team to ensure total and continuing care of his/her patients.

Health Advocate:

Shows an ability to act as an effective healthcare advocate for the patient, society, and the community.

Scholar:

a) The trainee exhibits a familiarity with sources of current scientific literature as it pertains to traumatology.
b) Exhibits an ability to critically evaluate and appraise medical literature.
c) Shows ability and interacts in teaching medical students and allied healthcare workers and patients.
d) Able to organize and successfully complete a research project.

Professional:

a) Displays dependability, reliability, honesty and is forthright with patients and colleagues.
b) Displays an understanding and sensitivity to age, gender, culture and ethnicity issues.
c) Displays responsibility and self-discipline and punctuality.
d) Communicates with patients with compassion and empathy.
e) Recognizes his/her own limitations and is able to seek and give advice/assistance when necessary.
f) Understands the principles and practice of biomedical ethics as it relates to traumatology.
Goals and objective for the Core Orthopaedic Surgery Resident  
McGill University Sport Medicine Rotation, St. Mary’s Hospital Centre  
Knee & Shoulder Surgery

PGY-1 & 2

Medical Expert

1. Basic Science
   a) General Knowledge of functional anatomy and musculoskeletal physiology as it applies to athletic performance.
   b) Basic understanding of pathophysiology of acute injuries in the athletic population.
   c) Basic knowledge of the pathophysiology of degenerative disorders of the knee and shoulder.

2. Basic Clinical Knowledge
   a) Awareness of mechanisms of injury as it applies to acute and chronic injuries in the athlete.
   b) Awareness of clinical signs and symptoms and presentation of common acute athletic injuries, as well as degenerative conditions about the knee and shoulder.

3. History and Physical
   a) Ability to elicit a pertinent history and to physically examine the knee to elicit ligamentous instability, meniscal pathology, tendonitis, and degenerative disease.
   b) Ability to elicit a pertinent history and to physically examine the shoulder to evaluate the various types of instability, rotator cuff tears, impingement, tendonitis, acromioclavicular joint pathology, scapular dyskinesis, labral pathology, and degenerative states.
   c) Ability to elicit a pertinent history and to physically examine the ankle to evaluate sprains, instability, other acute traumatic injuries.
   d) Ability to elicit a pertinent history and to physically examine the elbow to evaluate sprains, other acute traumatic injuries, tendinopathy and other degenerative conditions.

4. Interpretation and Utilization of Information
   a) Ability to order the appropriate and necessary blood tests as it pertains to the above conditions.
   b) Ability to interpret standard radiographs and other relevant imaging tests and blood work as it pertains to the above conditions.
5. **Clinical Judgement and Decision Making**
   Ability to demonstrate a basic understanding of potential treatment options for the above-mentioned conditions.

6. **Technical Skills**
   a) Demonstrate knowledge of surgical principles and a basic familiarity with common surgical procedures used to treat the above conditions.

**Communicator**
   a) Able to effectively demonstrate skills as a communicator and work and communicate effectively with other physicians, allied health professionals, patients and families.
   b) Able to complete organized and accurate history and physicals, progress notes, consultations and discharge summaries.

**Collaborator**
   a) Awareness of a team approach to the management of athletic problems involving physician, surgeon, therapist, coach/trainer and nutritionist.
   b) Interacts and consults effectively with all allied health professionals and acknowledges their roles and expertise.

**Manager**
   a) Shows ability to incorporate the use of current information technology into the practice of medicine (e.g.: use of PACS, internet, digital imaging...)
   b) Shows a basic understanding of the use of healthcare resources in a cost-effective and patient sensitive manner.
   c) Exhibits and ability effectively organize his/her work and work effectively as part of a team to ensure total and continuing care of his/her patients.

**Health Advocate**
   Shows an ability to act as an effective healthcare advocate for the patient, society, and the community.

**Scholar**
   a) The trainee exhibits a familiarity with sources of current scientific literature as it pertains to sports medicine, knee and shoulder surgery.
   b) Develops an ability to critically evaluate and appraise medical literature.
   c) Shows ability and interacts in teaching medical students and allied healthcare workers and patients.
   d) Able to organize and successfully complete a research project.

**Professional**
   a) Displays dependability, reliability, honesty and is forthright with patients and colleagues.
b) Displays an understanding and sensitivity to age, gender, culture and ethnicity issues.
c) Displays responsibility and self-discipline and punctuality.
d) Communicates with patients with compassion and empathy.
e) Recognizes his/her own limitations and is able to seek and give advice/assistance when necessary.
f) Understands the principles and practice of biomedical ethics as it relates to sport medicine, knee and shoulder surgery.

**PGY-3**

**Medical Expert**

1. **Basic Science**
   a) Detailed knowledge of functional anatomy and musculoskeletal physiology as it applies to the athletic performance.
   b) Understanding of pathophysiology of acute and chronic injuries in the athletic population.
   c) Knowledge of exercise physiology and its relevance to overall fitness and athletic performance.
   d) Knowledge of the pathophysiology of degenerative disorders of the knee and shoulder.

2. **Basic Clinical Knowledge**
   a) Awareness of mechanisms of injury as it applies to acute and chronic injuries in the athlete.
   b) Awareness of clinical signs and symptoms and presentation of common athletic injuries acute and chronic, as well as degenerative conditions about the knee and shoulder.

3. **History and Physical**
   a) Ability to elicit a pertinent history and to physically examine the knee to elicit ligamentous instability, meniscal pathology, tendonitis, and degenerative disease.
   b) Ability to elicit a pertinent history and to physically examine the shoulder to evaluate the various types of instability, rotator cuff tears, impingement, tendonitis, acromioclavicular joint pathology, scapular dyskinesia, labral pathology, and degenerative states.
   c) Ability to elicit a pertinent history and to physically examine the ankle to evaluate sprains, instability, other acute traumatic injuries.
   d) Ability to elicit a pertinent history and to physically examine the elbow to evaluate sprains, other acute traumatic injuries, tendinopathy and other degenerative conditions.
4. **Interpretation and Utilization of Information**
   a) Ability to order the appropriate and necessary blood tests as it pertains to the above conditions.
   b) Ability to interpret standard radiographs and other relevant imaging tests and blood work as it pertains to the above conditions.

5. **Clinical Judgement and Decision Making**
   Ability to demonstrate knowledge of potential treatment options for the above-mentioned conditions.

6. **Technical skills**
   a) Demonstrate a knowledge of and familiarity with common surgical procedures used to treat the above conditions.
   b) Demonstrate proficiency with intra-articular injection and arthrocentesis techniques for the knee, shoulder, ankle and elbow.
   c) Diagnostic arthroscopy

**Communicator**
   a) Able to effectively demonstrate skills as a communicator and work and communicate effectively with other physicians, allied health professionals, patients and families.
   b) Able to complete organized and accurate history and physicals, progress notes, consultations and discharge summaries.

**Collaborator**
   a) Awareness of a team approach to the management of athletic problems involving physician, surgeon, therapist, coach/trainer and nutritionist.
   b) Interacts and consults effectively with all allied health professionals and acknowledges their roles and expertise.
   c) Able to delegate appropriately and effectively to other members of the healthcare team.

**Manager**
   a) Shows ability to incorporate the use of current information technology into the practice of medicine (e.g.: use of PACS, internet, digital imaging...)
   b) Shows an ability to use healthcare resources in a cost-effective and patient sensitive manner.
   c) Exhibits an ability to effectively organize his/her work and work effectively as part of a team to ensure total and continuing care of his/her patients.

**Health Advocate**
   Shows an ability to act as an effective healthcare advocate for the patient, society and the community.
**Scholar**

a) The trainee exhibits a familiarity with sources of current scientific literature as it pertains to sports medicine and knee surgery.

b) Exhibits an ability to critically evaluate and appraise medical literature.

c) Shows ability and interacts in teaching medical students and allied healthcare workers and patients.

d) Able to organize and successfully complete a research project.

**Professional**

a) Displays dependability, reliability, honesty and is forthright with patients and colleagues.

b) Displays an understanding and sensitivity to age, gender, culture and ethnicity issues.

c) Displays responsibility and self-discipline and punctuality.

d) Communicates with patients with compassion and empathy.

e) Recognizes his/her own limitations and is able to seek and give advice/assistance when necessary.

f) Understands the principles and practice of biomedical ethics as it relates to the sports medicine and knee surgery.

**PGY-4**

**Medical Expert**

1. **Basic Science**

a) Appreciation of biomechanics as it relates to specific functions: walking, running, and throwing.

b) Detailed knowledge of principles of knee and shoulder rehabilitation as it pertains to athletic injuries and degenerative problems and postoperative rehabilitation.

2. **Basic Clinical Knowledge**

a) Detailed knowledge of mechanisms of injury as it applies to acute and chronic injuries in the athlete.

b) Knowledge of the non-surgical and surgical management of common problems about the knee including: instability, meniscal pathology, degenerative arthritis.

c) Knowledge of the non-surgical and surgical management of common problems about the shoulder including: impingement, rotator cuff tears, instability, adhesive capsulitis, and AC joint pathology, scapular dyskinesis, and degenerative arthritis.
d) Knowledge of the non-surgical and surgical management of common problems about the elbow including: instability, tendinopathy, impingement, and degenerative arthritis.
e) Knowledge of the surgical and non-surgical management of common problems about the ankle including: instability, osteochondritis dissecans, impingement, tendinopathy, and other degenerative conditions.

3. **History and Physical**
   a) Ability to elicit a pertinent history and to physically examine the knee to elicit ligamentous instability, meniscal pathology, tendonitis, and degenerative disease.
   b) Ability to elicit a pertinent history and to physically examine the shoulder to evaluate the various types of instability, rotator cuff tears, impingement, tendonitis, acromioclavicular joint pathology, scapular dyskinesis, labral pathology, and degenerative states.
   c) Ability to elicit a pertinent history and to physically examine the ankle to evaluate sprains, instability, other acute traumatic injuries.
   d) Ability to elicit a pertinent history and to physically examine the elbow to evaluate sprains, other acute traumatic injuries, tendinopathy and other degenerative conditions.

4. **Interpretation and Utilization of Information**
   a) Ability to order the appropriate and necessary blood tests and imaging as it pertains to all the above conditions.
   b) Ability to interpret imaging tests ordered including x-ray, CT, MRI, as it pertains to all the above conditions.

5. **Clinical Judgement and Decision Making**
   a) Able to demonstrate knowledge of the appropriate work-up and non-surgical and surgical management for the above-mentioned conditions.
   b) Demonstrate an understanding of the impact of the disease process and its necessary treatment in the patient’s life and sport.

6. **Technical Skills**
   a) Demonstrate knowledge of the various surgical techniques used to treat the above-mentioned conditions.

   b) Develop a proficiency in performing the following surgical procedures in the knee:
      1. Diagnostic arthroscopy
      2. Arthroscopic debridement
      3. Simple and arthroscopic partial meniscectomy
      4. Arthroscopic removal of loose bodies
      5. Total knee arthroplasty
c) Develop a proficiency in performing the following surgical procedures in the shoulder
   1. Diagnostic arthroscopy
   2. Open and arthroscopic instability repairs
   3. Arthroscopic acromioplasty
   4. Open and arthroscopic distal clavicle excision
   5. Simple open and arthroscopic rotator cuff repairs
   6. Introduction to the principles of shoulder arthroscopy
   7. Capable of performing sliding and non-sliding arthroscopic knots

**Communicator**
a) Able to effectively demonstrate skills as a communicator and work and communicate effectively with other physicians, residents, allied health professionals, patients and families.
b) Able to complete organized, concise and accurate history and physicals, progress notes, consultations and discharge summaries.

**Collaborator**
a) Awareness of a team approach to the management of athletic problems involving physician, surgeon, therapist, coach/trainer and nutritionist.
b) Interacts and consults effectively with all health and allied health professionals and acknowledges their roles and expertise.
c) Able to delegate appropriately and effectively to other members of the healthcare team.

**Manager**
a) Shows the ability to effectively incorporate the use of current information technology into the practice of medicine (e.g.: use of PACS, internet digital imaging, telemedicine....)
b) Shows an ability to use healthcare resources in a cost-effective and patient sensitive manner.
c) Exhibits an ability to effectively organize his/her work effectively as part of a team to ensure total continuing care of his/her patients.

**Health Advocate**
Shows an ability to act as an effective healthcare advocate for the patient, society and the community.

**Scholar**
a) Exhibits a familiarity and awareness of current scientific literature as it pertains to sports medicine, knee and shoulder surgery.
b) Exhibits an ability to critically evaluate and appraise medical literature and journal articles.
c) Shows an ability and interest in teaching students, junior residents and allied healthcare workers and patients.
d) Able to organize and successfully complete a research project.

**Professional**

a) Displays dependability, reliability, honesty and is forthright with patients and colleagues.
b) Displays an understanding and sensitivity to age, gender, culture and ethnicity issues.
c) Displays responsibility, self-discipline and punctuality.
d) Communicates with patients with compassion and empathy.
e) Recognizes his/her own limitations and is able to give advice/assistance when necessary.
f) Understands the principles and practice of biomedical ethics as it relates to sports medicines, knee and shoulder surgery.

**PGY-5**

**Medical Expert**

1. **Basic Science**

a) Detailed knowledge of biomechanics as it relates to specific functions: walking, running, and throwing.
b) Detailed knowledge of principles of knee and shoulder rehabilitation as it pertains to athletic injuries, degenerative conditions and post-op rehabilitation.

2. **Basic Clinical Knowledge**

a) Detailed knowledge of mechanisms of injury as it applies to acute and chronic injuries in the athlete.
b) Thorough knowledge of the non-surgical and surgical management of common problems about the knee (see PGY-4), as well as complex knee disorders including:
   - Osteochondral lesions
   - Patellofemoral arthritis and instability
   - Chronic and complex knee instabilities
   - Malalignment disorders
   - Failed arthroplasty/ligament reconstruction

c) Thorough knowledge of the non-surgical and surgical management of common problems about the shoulder (see PGY-4), as well as complex shoulder disorders including:
   - Multidirectional instability
   - Internal impingement
   - Labral tears

3. **History and Physical**

(See PGY-4)
4. **Interpretation and Utilization of Information**
   a) Ability to order the appropriate and necessary blood and fluid tests and imaging as it pertains to all the above conditions.
   b) Ability to interpret imaging tests ordered including x-ray, CT, MRI, MR-Arthrography, arthrography and bone scan as it pertains to all the above conditions.

5. **Clinical Judgement and Decision Making**
   a) Able to demonstrate knowledge of the appropriate work-up, non-surgical and surgical management for all of the above conditions.
   b) Demonstrate a good understanding of the impact of the disease process and its necessary treatment in the patient’s life and sport.
   c) Demonstrate knowledge of factors involved in return-to-play decisions for competitive and recreational athletes.

6. **Technical Skills**
   a) Demonstrate a knowledge and understanding of different surgical techniques used to treat the above mentioned conditions.
   b) Exhibit a proficiency in performing the surgical procedures in the knee and shoulder described in the PGY-4 objectives.
   c) Develop a proficiency in performing the following surgical procedures in the knee:
      1. Complex partial meniscectomies (bucket-handle tears)
      2. Meniscal repair – all inside and inside-out
      3. ACL reconstructions (arthroscopic)
      4. Mosaicplasty/cartilage grafting
      5. Tibial tubercle osteotomy
      6. Lateral retinacular release
      7. High tibial osteotomy (opening & closing wedge)
      8. Unicompartmental knee arthroplasty
      9. Osteochondral fragment fixation
   d) Develop a proficiency in performing the following surgical procedures in the shoulder
      1. Diagnostic arthroscopy
      2. Complex rotator cuff repairs
      3. Manipulation under anaesthesia and capsular releases for adhesive capsulitis
      4. Chronic AC joint instability reconstructions
      5. Shoulder arthroplasty/resurfacing.
   e) Develop an understanding of the principles of shoulder arthroscopic reconstructive techniques and basic ankle and elbow arthroscopy techniques.
**Communicator**

a) Able to effectively demonstrate skills as a communicator and work and communicate effectively with other physicians, residents, allied health professionals, patients and families.

b) Able to complete organized and concise and accurate history and physicals, progress notes, consultations, and discharge summaries.

**Collaborator**

a) Awareness of a team approach to the management of athletic problems involving physician, surgeon, therapist, coach/trainer and nutritionist.

b) Interacts and consults effectively with all health and allied health professionals and acknowledges their roles and expertise.

c) Able to delegate appropriately and effectively to other members of the healthcare team.

**Manager**

a) Shows the ability to effectively incorporate the use of current information technology into the practice of medicine (e.g.: use of PACS, internet, digital imaging, telemedicine...)

b) Shows an ability to use healthcare resources in a cost-effective and patient sensitive manner.

c) Exhibits an ability to effectively organize his/her work effectively as part of a team to ensure total and continuing care of his/her patients.

**Scholar**

a) Exhibits a knowledge and understanding of current scientific literature as it pertains to sports medicine and knee surgery.

b) Exhibits an ability to critically evaluate and appraise medical literature and journal articles.

c) Shows an ability and interest in teaching and instructing students, junior residents and allied healthcare workers as well as families and patients; exhibits an ability to instruct and teach surgical and procedural techniques to junior members of the team.

d) Able to organize and successfully complete a research project.

**Professional**

a) Displays dependability, reliability, honesty and is forthright with patients and colleagues.

b) Displays an understanding and sensitivity to age, gender, culture and ethnicity issues.

c) Displays responsibility, self-discipline and punctuality.

d) Communicates with patients with compassion and empathy.
e) Recognizes his/her own limitations and is able to seek and give advice/assistance when necessary.

f) Understands the principles and practice of biomedical ethics as it relates to sports medicine, knee and shoulder surgery.